

Figure 16. Chloroform concentrations and selected continuous monitoring data during a November 2000 storm at Wilson Spring.

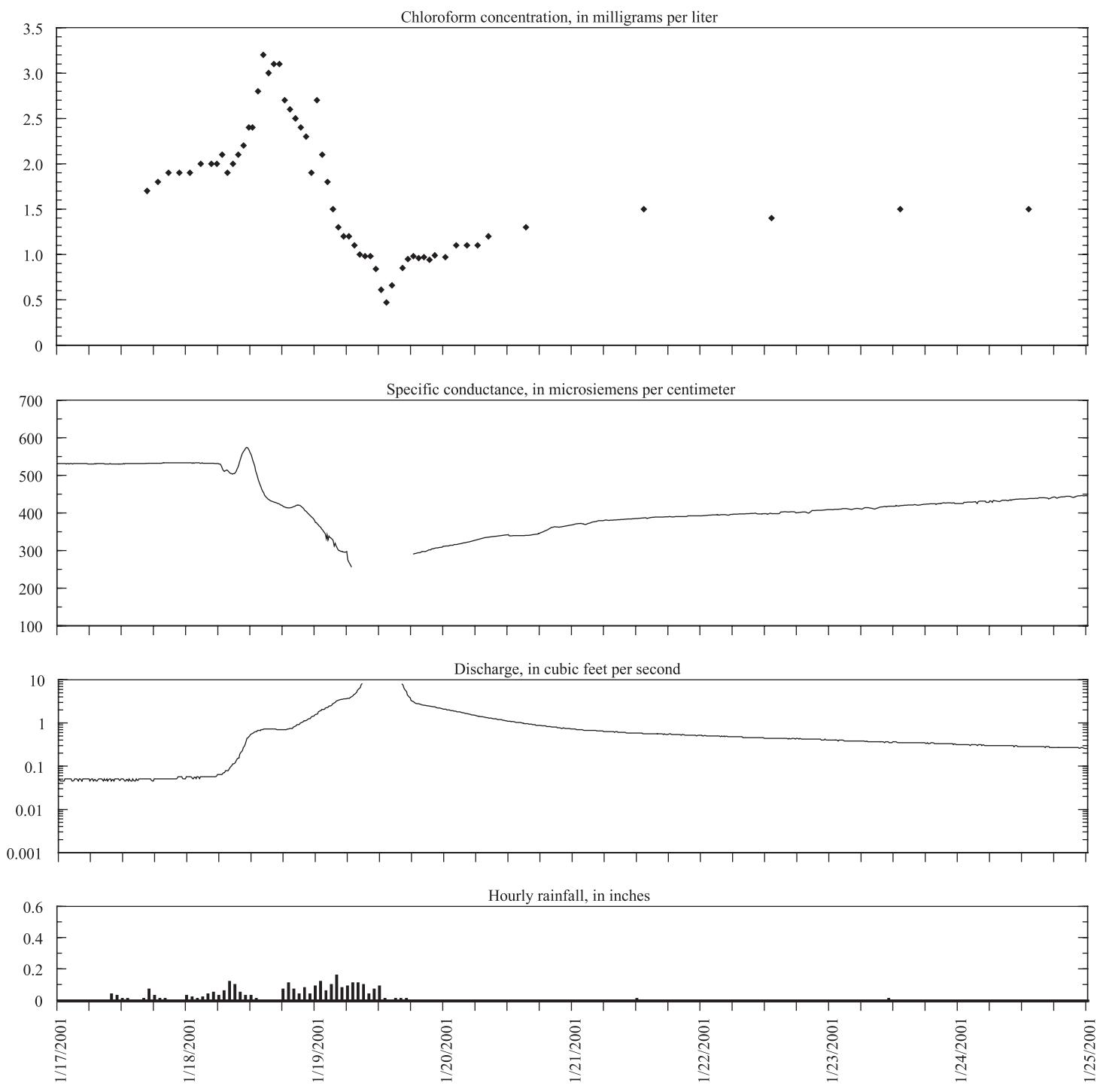


Figure 17. Chloroform concentrations and selected continuous monitoring data during a January 2001 storm at Wilson Spring. (Line gaps indicate missing data.)

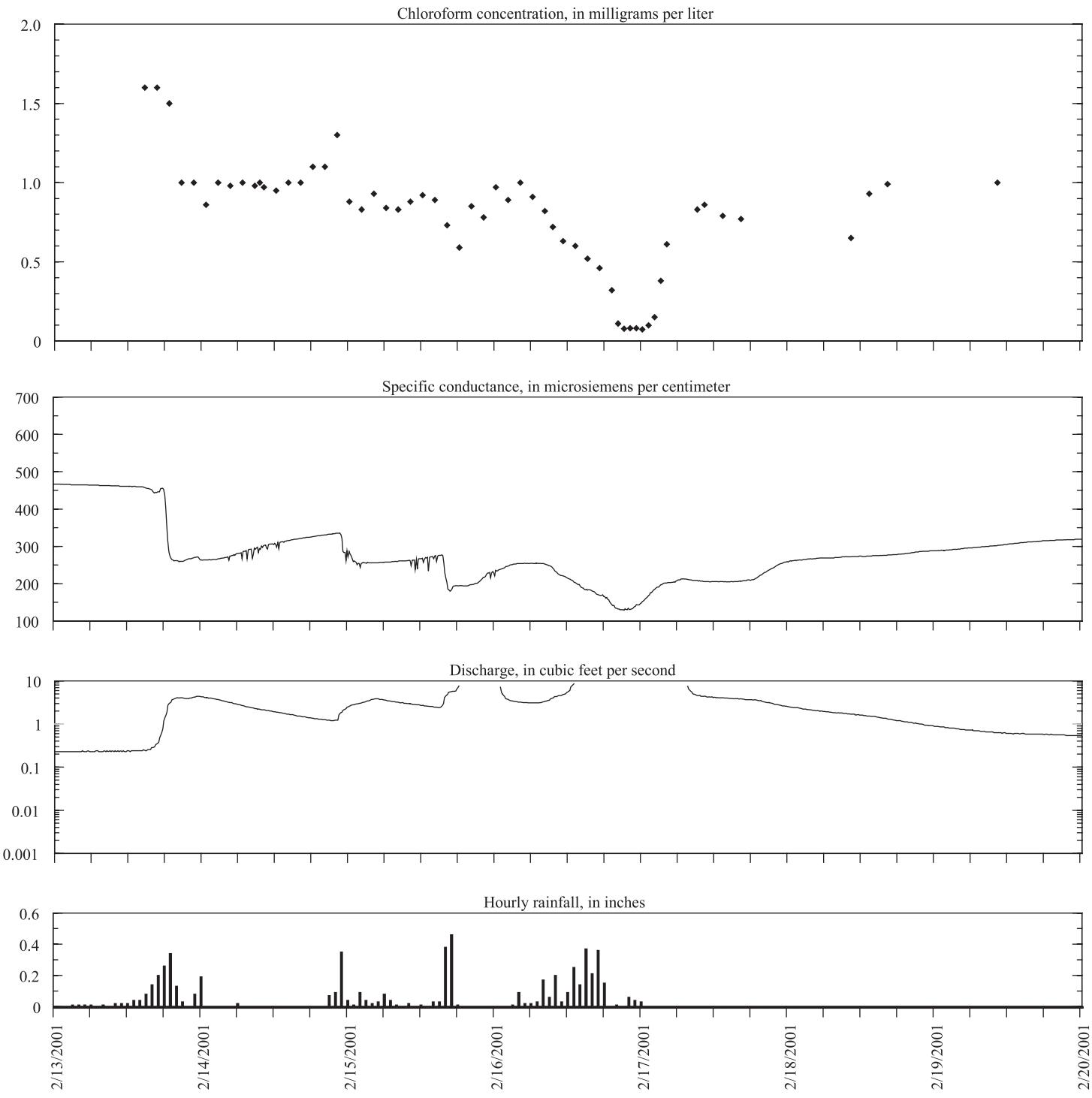


Figure 18. Chloroform concentrations and selected continuous monitoring data during a February 2001 storm at Wilson Spring. (Line gaps indicate missing data.)

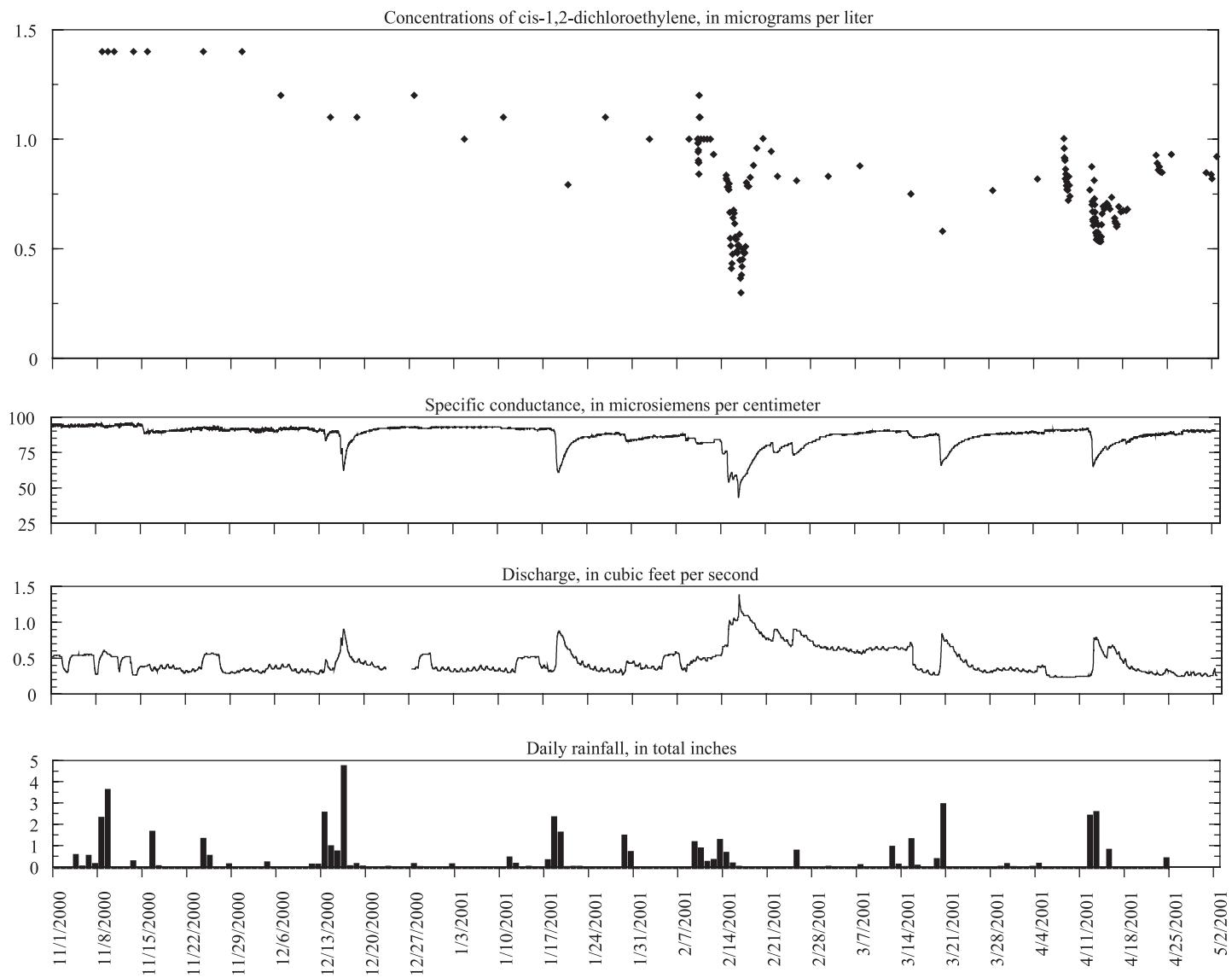


Figure 19. Concentrations of cis-1,2-dichloroethylene and selected continuous monitoring data at Cascade Spring, November 2000 to May 2001. (Line gaps indicate missing data. Discharge data do not include water captured by Wartrace Water System.)

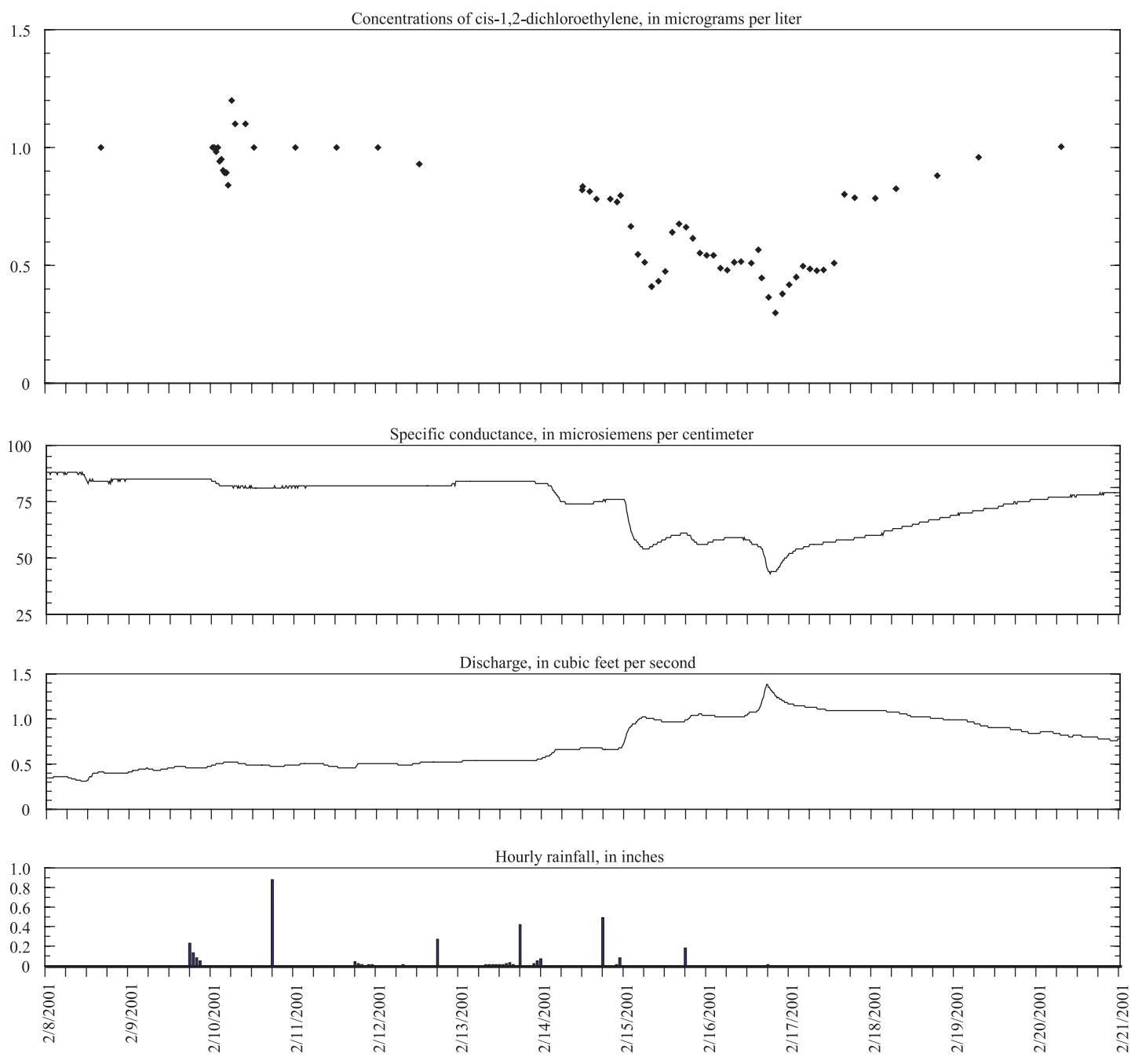


Figure 20. Concentrations of cis-1,2-dichloroethylene and selected continuous monitoring data during a February 2001 storm at Cascade Spring. (Discharge data do not include water captured by Wartrace Water System.)

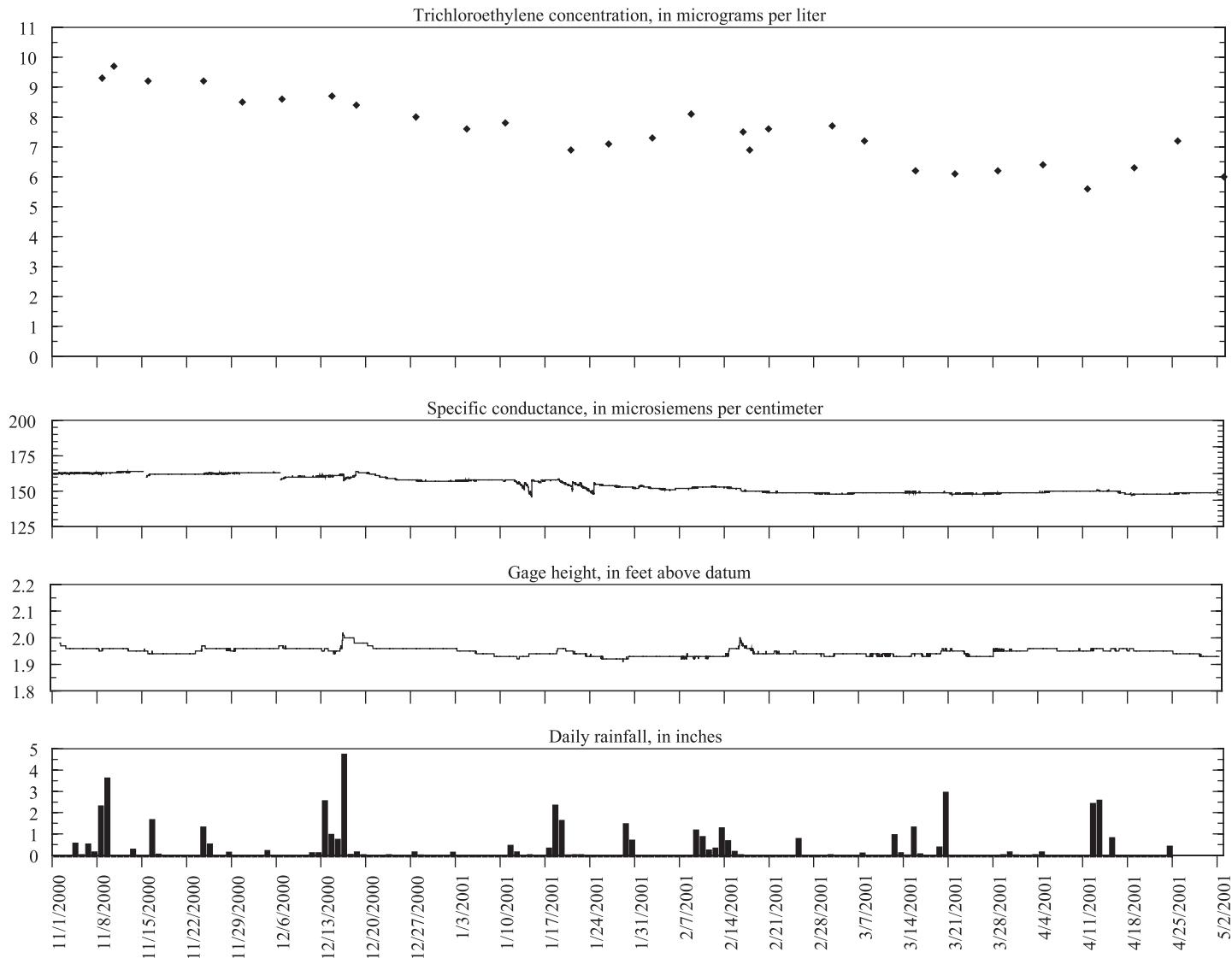


Figure 21. Trichloroethylene concentrations and selected continuous monitoring data at Big Spring, November 2000 to May 2001. (Rainfall data were collected at Cascade Spring.)

were 9.2, 8.3, 7.3, 7.3, 6.8, and 6.1 µg/L, respectively, from November 2000 through April 2001.

A few additional samples were collected from Big Spring during a February 2001 storm when 3 inches of rain fell from February 9 through February 16 and when the greatest changes in water quality were detected at nearby Cascade Spring. A sample collected from Big Spring on February 8 (before the storm) and analyzed using the portable GC contained 8.1 µg/L of TCE (fig. 21). Samples collected on February 16 and February 17 during the storm and analyzed using the portable GC contained 7.5 and 6.9 µg/L of TCE, respectively (fig. 21). A

sample collected on February 20 and analyzed using the portable GC contained 7.6 µg/L of TCE (fig. 21).

SUMMARY

In karst settings, ground-water levels, discharge, and water-quality conditions can fluctuate widely and rapidly. Yet, for most investigations of chlorinated solvents and other volatile organic compounds (VOCs) in ground water, periodic sampling generally remains the accepted approach for monitoring contaminant concentrations. Few detailed data sets have been collected and published that adequately document VOC concentrations in karst springs. The U.S. Geological Survey,

in cooperation with the Tennessee Department of Environment and Conservation, Division of Superfund, collected discharge, rainfall, continuous water-quality (temperature, dissolved oxygen, specific conductance, and pH), and VOC data from three karst springs (Wilson, Cascade, and Big Springs) in Middle Tennessee from February 2000 to May 2001. Wilson Spring is located in the Central Basin karst region of Tennessee; Cascade Spring and Big Spring at Rutledge Falls are located on the escarpment of the Highland Rim in similar hydrogeologic settings.

Discharge and rainfall were measured at 10- or 15-minute intervals at the three springs. Water-quality monitors were used to measure temperature, pH, specific conductance, and dissolved oxygen at 10- or 15-minute intervals in the springs. Nonisokinetic dip-sampling methods were used to periodically (mostly during base-flow conditions) collect VOC samples from the springs. During selected storms, automatic samplers were used to collect samples at Cascade Spring and Wilson Spring. VOC samples were analyzed using a portable GC. Quality-control samples included trip blanks, equipment blanks, replicates, and field-matrix spike samples.

Quality-control samples were collected during 64, 36, and 28 different sampling times at Wilson Spring, Cascade Spring, and Big Spring, respectively. These samples included 25, 16, and 13 replicates from Wilson Spring, Cascade Spring, and Big Spring, respectively, which were analyzed by the USGS NWQL. VOC concentrations detected using the portable GC were similar to concentrations reported by NWQL with the exception of chloroform and TCE concentrations. Chloroform and TCE concentrations detected by the portable GC were consistently lower (median percentage differences of -19.2 and -17.4, respectively) than the concentrations detected by the NWQL. High correlations, however, were observed between concentrations detected by the portable GC and concentrations detected by the NWQL (Pearson's $r > 0.96$). VOC concentrations in automatically collected samples were similar to concentrations in replicates collected using dip-sampling methods. More than 80 percent of the VOC concentrations measured in automatically collected samples were within 12 percent of concentrations in dip samples.

Continuous monitoring data collected from February 2000 through October 2000 were used to characterize the water-quality responses of the three springs to rainfall events. During this period, VOC samples

were collected periodically at each site using dip-sampling methods and were analyzed using a portable GC or by the NWQL. The primary objectives of this initial phase of VOC sampling were to evaluate analytical methods and to obtain background information on VOC concentrations in the springs. In November 2000, a more intensive phase of VOC sampling began in which the primary objectives were to evaluate sample-collection methods and to document changes in VOC concentrations in the springs. During this more intensive sampling, VOC samples were collected weekly during base-flow conditions using dip-sampling methods and as frequently as every 15 minutes during selected storms at Wilson and Cascade Springs using automatic samplers.

The continuous monitoring data indicated that the three springs each have different water-quality responses to rainfall events. At Wilson Spring, significant changes in water quality and discharge were detected (specific conductance ranged from 81 to 663 $\mu\text{S}/\text{cm}$) with rapid changes observed during storms. Some changes in water quality and discharge also were detected at Cascade Spring. Changes in water quality at Cascade Spring were not as frequent and did not occur as quickly during storms as at Wilson Spring. Minimal changes in water quality and discharge were recorded at Big Spring at Rutledge Falls (specific conductance ranged from 144 to 166 $\mu\text{S}/\text{cm}$).

From February 2000 through October 2000, dip samples were collected during 34, 26, and 27 different times from Wilson, Cascade, and Big Springs, respectively. During the second, more intensive, phase of monitoring (November 2000 to May 2001), VOC samples were collected during 566, 172, and 28 sampling times at Wilson, Cascade, and Big Springs, respectively. Most of the VOC samples from Wilson and Cascade Springs were collected using automatic samplers. Chloroform concentrations detected at Wilson Spring ranged from 0.073 to about 34 mg/L, and significant changes in concentrations were detected during individual storms. The greatest change was observed during the first storm during fall 2000, when chloroform concentrations increased from about 0.5 to about 34 mg/L. Concentrations of cis-1,2-DCE concentrations detected at Cascade Spring ranged from 0.30 to 1.8 $\mu\text{g}/\text{L}$ and gradually decreased between November 2000 and May 2001. In addition to the gradual decrease in cis-1,2-DCE concentrations, some additional short-term decreases were recorded during storms. VOC samples collected at approximately

1-week intervals indicated a gradual decrease in TCE concentrations at Big Spring at Rutledge Falls; average concentrations measured in samples analyzed using the portable GC decreased from about 9 µg/L in November 2000 to about 6 µg/L in April 2001.

REFERENCES

- Brown, C.J., and Ewers, R.O., 1991, Impacts of barnyard wastes on ground water nitrate-N concentrations in a maturely karsted carbonate aquifer of south-central Kentucky, *in* Kastning E., and Kastning, K.M., eds., Appalachian Karst Symposium, Radford, Va., 1991, Proceedings: National Speleological Society, p. 205-210.
- Buchanan, T.J., and Somers, W.P., 1968, Stage measurement at gaging stations: U.S. Geological Survey Techniques of Water-Resources Investigations, book 3, chap. A7, 28 p.
- 1969, Discharge measurements at gaging stations: U.S. Geological Survey Techniques of Water-Resources Investigations, book 3, chap. A8, 65 p.
- Burchett, C.R., 1977, Water resources of the upper Duck River basin, central Tennessee: Tennessee Division of Water Resources, Water Resources Series no. 12, 103 p.
- Burchett, C.R., and Hollyday, E.F., 1974, Tennessee's newest aquifer [abs.]: Geological Society of America Abstracts with Programs, v. 6, no. 4, p. 338.
- Carter, R.W., and Davidian, Jacob, 1968, General procedure for gaging streams: U.S. Geological Survey Techniques of Water-Resources Investigations, book 3, chap. A6, 13 p.
- Cohen, R.M., and Mercer, J.W., 1993, DNAPL site evaluation: Boca Raton, Fla., CRC Press, variously paginated.
- Connor, B.F., Rose, D.L., Noriega, M.C., Murtagh, L.K., and Abney, S.R., 1998, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory—determination of 86 volatile organic compounds in water by gas chromatography/mass spectrometry, including detections less than reporting limits: U.S. Geological Survey Open-File Report 97-829, 78 p.
- Crawford, N.C., and Ulmer, C.S., 1994, Hydrogeologic investigations of contaminant movement in karst aquifers in the vicinity of a train derailment near Lewisburg, Tennessee: Environmental Geology, v. 23, p. 41-52.
- Dreiss, S.J., 1989, Regional scale transport in a karst aquifer, 1. Component separation of spring flow hydrographs: Water Resources Research, v. 25, no. 1, p. 117-125.
- Einfeld, W., 1998, Environmental technology verification report—field-portable gas chromatograph, Sentex Systems, Inc., Scentograph Plus II: U.S. Environmental Protection Agency, National Exposure Research Laboratory, EPA/600/R-98/145, 63 p.
- Einfeld, Wayne, and Koglin, E.N., 2000, Environmental technology verification report, Groundwater sampling technologies, GORE-SORBER water quality monitoring: Washington, D.C., U.S. Environmental Protection Agency, EPA/600/R-00/091, 38 p.
- Farmer, J.J., and Hollyday, E.F., 1999, Regional subsurface correlation of the Pierce Limestone and adjacent limestones of Middle Tennessee: Tennessee Department of Environment and Conservation, Report of Investigations 47, 21 p.
- Hess, J.W., and White, W.B., 1988, Storm response of the karstic carbonate aquifer of southcentral Kentucky: Journal of Hydrology, v. 99, p. 235-252.
- Hydrolab Corporation, 1999, DataSonde 4 and MiniSonde water quality multiprobe user's manual, Revision G, April 1999.
- Johnson, S.E., 1995, Hydrogeology of the Cascade Springs area near Tullahoma, Tennessee: U.S. Geological Survey Water-Resources Investigations Report 95-4002, 17 p.
- Kennedy, E.J., 1983, Computation of continuous records of streamflow: U.S. Geological Survey Techniques of Water-Resources Investigations, book 3, chap. A13, 53 p.
- 1984, Discharge ratings at gaging stations: U.S. Geological Survey Techniques of Water-Resources Investigations, book 3, chap. A10, 59 p.
- Lucius, J.E., Olhoeft, G.R., Hill, P.L., and Duke, S.K., 1992, Properties and hazards of 108 selected substances: U.S. Geological Survey Open-File Report 92-527, 554 p.
- Pritt, J.W., and Raese, J.W., eds., 1995, Quality assurance/quality control manual—National Water Quality Laboratory: U.S. Geological Survey Open-File Report 95-443, 35 p.
- Quinlan, J.F., 1989, Ground-water monitoring in karst terranes—recommended protocols and implicit assumptions: Las Vegas, Nev., U.S. Environmental Protection Agency, EPA/600/X-89/050, 79 p.
- Quinlan, J.F., and Alexander, E.C., Jr., 1987, How often should samples be taken at relevant locations for reliable monitoring of pollutants from an agricultural, waste disposal, or spill site in a karst terrane? A first approximation, *in* Beck, B.F., and Wilson, W.L., eds., Multidisciplinary Conference on Sinkholes and Environmental Impacts of Karst, Orlando, Fla., Proceedings: Rotterdam, A.A. Balkema, p. 277-293.

- Ryan, Martin, and Meiman, Joe, 1996, An examination of short-term variations in water quality at a karst spring in Kentucky: *Ground Water*, v. 34, no. 1, p. 23-30.
- Wagner, R.J., Mattraw, H.C., Ritz, G.F., and Smith, B.A., 2000, Guidelines and standard procedures for continuous water-quality monitors: Site selection, field operation, calibration, record computation, and reporting: U.S. Geological Survey Water-Resources Investigations Report 00-4252, 53 p.
- Wilde, F.D., and Radtke, D.B., 1998, Field measurements: U.S. Geological Survey Techniques of Water-Resources Investigations, book 9, chap. A6, variously paginated.
- Wilde, F.D., Radtke, D.B., Gibbs, Jacob, and Iwatsubo, R.T., eds., 1999a, Collection of water samples: U.S. Geological Survey Techniques of Water-Resources Investigations, book 9, chap. A4, variously paginated.
- 1999b, Processing of water samples: U.S. Geological Survey Techniques of Water-Resources Investigations, book 9, chap. A5, variously paginated.
- Wilson, C.W., Jr., 1990, Pre-Chattanooga stratigraphy in Central Tennessee (2d ed.): Tennessee Department of Environment and Conservation, Division of Geology, Bulletin 56, 415 p.
- Wolfe, W.J., Haugh, C.J., Webbers, Ank, and Diehl, T.H., 1997, Preliminary conceptual models of the occurrence, fate, and transport of chlorinated solvents in karst regions of Tennessee: U.S. Geological Survey Water-Resources Investigations Report 97-4097, 80 p.
- Wood, W.W., 1976, Guidelines for collection and field analysis of ground-water samples for selected unstable constituents: U.S. Geological Survey Techniques of Water-Resources Investigations, book 1, chap. D2, 24 p.

Table 1. Registry number and properties of volatile organic compounds measured using the portable gas chromatograph

[Values are at 20 degrees Celsius; CAS, Chemical Abstracts Service; mg/L, milligrams per liter; mm HG, millimeters of mercury; data from Cohen and Mercer (1993) and Lucius and others (1992)]

Volatile organic compound	CAS registry number	Molecular weight (grams)	Solubility in water (mg/L)	Vapor pressure (mm Hg)
Tetrachloroethylene (PCE)	127-18-4	165.8	200	14
Trichloroethylene (TCE)	79-01-6	131.4	1,000	58
1,1-Dichloroethylene (1,1-DCE)	75-35-4	96.9	400	490
cis-1,2-Dichloroethylene (cis-1,2-DCE)	156-59-2	96.9	3,500	160
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	133.4	1,300	100
Chloroform	67-66-3	119.4	8,000	160

Table 2. Retention times and estimated detection limits for volatile organic compounds measured using the portable gas chromatograph

[µg/L, micrograms per liter]

Compound	Retention time (seconds)	Estimated detection limit (µg/L)
Tetrachloroethylene (PCE)	236	0.25
Trichloroethylene (TCE)	126	0.25
1,1-Dichloroethylene (1,1-DCE)	105	0.25
cis-1,2-Dichloroethylene (cis-1,2-DCE)	86	0.25
1,1,1-Trichloroethane (1,1,1-TCA)	98	0.25
Chloroform	90	0.25

Table 3. Volatile organic compounds in the U.S. Geological Survey National Water Quality Laboratory analyte list

[CAS, Chemical Abstracts Service; µg/L, micrograms per liter]

CAS number	Volatile organic compound	Reporting limit (µg/L)
71-55-6	1,1,1-Trichloroethane	0.1
76-13-1	1,1,2-Trichlorotrifluoroethane	0.1
75-34-3	1,1-Dichloroethane	0.1
75-35-4	1,1-Dichloroethylene	0.1
95-50-1	1,2-Dichlorobenzene	0.2
107-06-2	1,2-Dichloroethane	0.1
17060-07-0	1,2-Dichloroethane-d4 (surrogate)	0.1
78-87-5	1,2-Dichloropropane	0.1
541-73-1	1,3-Dichlorobenzene	0.1
460-00-4	1,4-Bromofluorobenzene (surrogate)	0.1
106-46-7	1,4-Dichlorobenzene	0.1
71-43-2	Benzene	0.1
75-27-4	Bromodichloromethane	0.2
75-25-2	Bromoform	0.1
108-90-7	Chlorobenzene	0.1
67-66-3	Chloroform	0.2
124-48-1	Dibromochloromethane	0.2
75-71-8	Dichlorodifluoromethane	0.2
75-09-2	Dichloromethane	0.2
60-29-7	Diethyl ether	0.2
108-20-3	Diisopropyl ether	0.1
637-92-3	Ethyl tert-butyl ether	0.1
100-41-4	Ethylbenzene	0.1
100-42-5	Styrene	0.1
127-18-4	Tetrachloroethylene	0.2
56-23-5	Tetrachloromethane	0.1
108-88-3	Toluene	0.1
2037-26-5	Toluene-d8 (surrogate)	0.1
79-01-6	Trichloroethylene	0.2
75-69-4	Trichlorofluoromethane	0.2
75-01-4	Vinyl chloride	0.1
156-59-2	cis-1,2-Dichloroethylene	0.2
	m- and p-Xylene	0.1
95-47-6	o-Xylene	0.2
1634-04-4	tert-Butyl methyl ether	0.2

Table 4. Chloroform results for replicate samples analyzed by different laboratories

[VBW, volatile blank water; USGS, U.S. Geological Survey; all replicates were collected from the flume using dip-sampling methods; for sampling times with multiple replicates from the flume analyzed using the portable gas chromatograph, the average concentration from table 10 is listed]

Type of sample	Sample date and time	Chloroform concentration (milligrams per liter)		
		Replicate analyzed by the USGS National Water Quality Laboratory	Replicate(s) analyzed using the portable gas chromatograph	Percent difference
Wilson Spring	03/22/2000 1200	1.6	1.2	-25.0
Wilson Spring	05/22/2000 1000	3.8	4.7	23.7
Wilson Spring	06/13/2000 0930	2.9	3.0	3.4
Wilson Spring	06/13/2000 1530	3.8	1.9	-50.0
Wilson Spring	09/12/2000 0900	0.71	0.76	7.0
Wilson Spring	09/12/2000 1100	1.0	1.0	0.0
Wilson Spring	09/12/2000 1300	1.2	1.2	0.0
Wilson Spring	09/12/2000 1530	1.4	1.3	-7.1
Wilson Spring	11/09/2000 1300	6.7	7.3	9.0
Wilson Spring	11/10/2000 1100	2.8	3.2	14.3
Wilson Spring	12/14/2000 0800	2.6	2.7	3.8
Wilson Spring	01/18/2001 1210	3.3	2.4	-27.3
Wilson Spring	01/19/2001 1010	1.6	1.0	-37.5
Wilson Spring	01/30/2001 0720	2.3	1.8	-21.7
Wilson Spring	01/31/2001 1300	1.8	1.3	-27.8
Wilson Spring	02/07/2001 1040	2.2	1.6	-27.3
Wilson Spring	02/12/2001 1030	2.3	1.5	-34.8
Wilson Spring	02/14/2001 1000	1.4	1.0	-28.6
Wilson Spring	02/16/2001 1100	0.78	0.63	-19.2
Wilson Spring	03/15/2001 1300	2.4	2.3	-4.2
Wilson Spring	03/20/2001 1000	1.9	1.3	-31.6
Wilson Spring	03/23/2001 1200	1.6	1.2	-25.0
Wilson Spring	04/12/2001 1400	3.0	2.6	-13.3
Wilson Spring	04/13/2001 1159	1.4	1.1	-21.4
Wilson Spring	05/02/2001 0850	3.2	2.7	-15.6
VBW spike	06/28/2001 0950	5.8	5.7	-1.7
VBW spike	06/28/2001 0940	9.6	8.9	-7.3

Table 5. Chloroform results for split replicate samples analyzed using the portable gas chromatograph at Wilson Spring

Sample date and time	Sampling location	Sample collection method	Dilution used during analysis	Chloroform concentration (milligrams per liter)			Relative percent difference
				Split replicate 1	Split replicate 2	Average	
03/22/2000 1200	Flume	Dip	1:200	1.2	1.3	1.3	8.0
04/03/2000 1215	Flume	Dip	1:200	1.2	1.3	1.3	8.0
04/03/2000 1300	Flume	Dip	1:200	1.3	1.4	1.4	7.4
05/15/2000 1300	Flume	Dip	1:850	2.7	2.6	2.7	3.8
06/13/2000 1530	Flume	Dip	1:200	1.7	2.1	1.9	21.1
06/13/2000 1615	Flume	Dip	1:200	2.4	2.2	2.3	8.7
06/19/2000 1130	Flume	Dip	1:200	2.3	2.3	2.3	0.0
06/19/2000 1230	Flume	Dip	1:200	2.7	2.7	2.7	0.0
07/21/2000 1230	Flume	Dip	1:200	1.4	1.4	1.4	0.0
09/12/2000 0900	Flume	Dip	1:200	0.76	0.76	0.76	0.0
09/12/2000 1000	Flume	Dip	1:200	1.1	1.0	1.1	9.5
09/12/2000 1100	Flume	Dip	1:200	1.0	1.0	1.0	0.0
09/12/2000 1400	Flume	Dip	1:200	1.2	1.2	1.2	0.0
11/09/2000 0400	Tub	Automatic sampler	1:1,000	11	11	11	0.0
12/13/2000 1630	Tub	Automatic sampler	1:100	0.50	0.30	0.40	50.0
12/13/2000 1700	Tub	Automatic sampler	1:100	0.38	0.33	0.36	14.1
12/13/2000 1930	Tub	Automatic sampler	1:100	3.2	3.2	3.2	0.0
01/18/2001 2310	Tub	Automatic sampler	1:125	2.0	1.8	1.9	10.5
01/19/2001 0810	Tub	Automatic sampler	1:125	0.93	1.0	1.0	7.3
02/16/2001 0200	Tub	Automatic sampler	1:125	0.94	0.85	0.9	10.1
02/16/2001 1459	Tub	Automatic sampler	1:125	0.53	0.51	0.52	3.8
02/25/2001 0220	Tub	Automatic sampler	1:125	1.3	1.2	1.3	8.0
02/25/2001 0619	Tub	Automatic sampler	1:125	0.73	0.67	0.70	8.6
02/25/2001 1419	Tub	Automatic sampler	1:125	1.0	0.82	0.91	19.8
02/26/2001 0940	Tub	Automatic sampler	1:125	1.0	1.1	1.1	9.5
03/15/2001 1300	Flume	Dip	1:250	2.3	2.1	2.2	9.1
03/20/2001 0120	Tub	Automatic sampler	1:250	1.3	1.4	1.4	7.4
03/20/2001 1700	Tub	Automatic sampler	1:100	0.35	0.30	0.33	15.4
03/20/2001 2359	Tub	Automatic sampler	1:100	0.90	0.81	0.86	10.5
04/15/2001 1600	Tub	Automatic sampler	1:175	1.3	1.0	1.2	26.1
04/16/2001 0200	Tub	Automatic sampler	1:175	1.2	1.0	1.1	18.2
04/17/2001 1109	Tub	Automatic sampler	1:175	1.2	1.0	1.1	18.2
04/18/2001 0310	Tub	Automatic sampler	1:175	1.0	1.0	1.0	0.0

Table 6. Chlorinated-ethylene results for replicate samples analyzed by different laboratories

[$\mu\text{g/L}$, micrograms per liter; USGS, U.S. Geological Survey; <, less than; --, no data; VBW, volatile blank water. All replicates were collected using dip-sampling methods. For sampling times with multiple dip replicates analyzed using the portable gas chromatograph, the average concentration from table 14 is listed]

Type of sample	Sample date and time	Tetrachloroethylene			Trichloroethylene			cis-1,2-Dichloroethylene		
		Concentration ($\mu\text{g/L}$)		Replicate analyzed by the USGS National Water Quality Laboratory	Concentration ($\mu\text{g/L}$)		Replicate analyzed by the USGS National Water Quality Laboratory	Concentration ($\mu\text{g/L}$)		Replicate(s) analyzed using the portable gas chromatograph
		Replicate(s) analyzed using the portable gas chromatograph	Percent difference		Replicate(s) analyzed using the portable gas chromatograph	Percent difference		Replicate(s) analyzed using the portable gas chromatograph	Percent difference	
Type of sample	Sample date and time	National Water Quality Laboratory	Percent difference	Replicate analyzed by the USGS National Water Quality Laboratory	Percent difference	Replicate analyzed by the USGS National Water Quality Laboratory	Percent difference	Replicate analyzed by the USGS National Water Quality Laboratory	Percent difference	Replicate(s) analyzed using the portable gas chromatograph
Cascade Spring	06/20/2000 1130	0.45	0.31	-31.1	0.25	<0.20	--	1.3	1.2	-7.7
Cascade Spring	09/13/2000 0730	0.47	0.59	25.5	0.24	<0.25	--	1.6	1.5	-6.3
Cascade Spring	09/13/2000 0930	0.46	0.59	28.3	0.24	<0.25	--	1.6	--	--
Cascade Spring	09/13/2000 1130	0.49	0.66	34.7	0.25	0.49	96.0	1.7	1.5	-11.8
Cascade Spring	09/13/2000 1330	0.47	0.71	51.1	0.23	0.52	126.1	1.6	1.5	-6.3
Cascade Spring	11/09/2000 1000	0.44	0.37	-15.9	0.22	<0.25	--	1.4	1.3	-7.1
Cascade Spring	11/13/2000 1045	0.46	0.40	-13.0	0.23	<0.25	--	1.4	1.4	0.0
Cascade Spring	12/14/2000 0900	0.41	<0.25	--	0.21	<0.25	--	1.1	1.2	9.1
Cascade Spring	01/04/2001 0945	0.39	0.27	-30.1	0.22	<0.25	--	1.0	1.2	20.0
Cascade Spring	02/08/2001 1545	0.42	<0.25	--	0.30	<0.25	--	1.0	1.0	0.0
Cascade Spring	02/12/2001 1215	0.44	<0.25	--	0.28	<0.25	--	0.93	1.0	7.5
Cascade Spring	02/16/2001 1245	0.28	<0.25	--	0.18	<0.25	--	0.51	0.48	-5.9
Cascade Spring	03/15/2001 1130	0.33	<0.25	--	0.23	<0.25	--	0.75	1.0	33.3
Cascade Spring	03/20/2001 1100	0.31	<0.25	--	0.22	<0.25	--	0.58	0.62	6.9
Cascade Spring	04/13/2001 1359	0.27	<0.25	--	0.19	<0.25	--	0.57	0.55	-3.5
Cascade Spring	05/02/2001 1200	0.32	<0.25	--	0.25	<0.25	--	0.92	1.0	8.7
VBW spike	05/30/2001 1200	0.33	0.34	3.0	0.35	0.35	0.0	0.29	<0.25	--
VBW spike	05/30/2001 1210	3.2	3.2	0.0	3.6	3.1	-13.9	3.2	2.8	-12.5
VBW spike	05/30/2001 1220	4.0	3.7	-7.5	4.5	3.8	-15.6	4.0	3.4	-15.0
VBW spike	05/30/2001 1230	5.3	4.5	-15.1	5.9	4.6	-22.0	5.2	4.2	-19.2
VBW spike	05/30/2001 1240	7.6	5.9	-22.4	8.6	6.4	-25.6	7.8	6.2	-20.5
VBW spike	05/30/2001 1300	6.3	5.1	-19.0	7.3	5.4	-26.0	6.8	5.2	-23.5

Table 7. Chlorinated-ethylene results for field-matrix spike samples collected at Cascade Spring

[$\mu\text{g/L}$, micrograms per liter; <, less than; >, greater than. All samples were analyzed using the portable gas chromatograph. For sampling times with multiple dip replicates, the average concentration from table 14 is listed]

Sample date and time	Description	Spike concentration ($\mu\text{g/L}$)	Tetrachloroethylene			Trichloroethylene			cis-1,2-Dichloroethylene		
			Before spike ($\mu\text{g/L}$)	After spike ($\mu\text{g/L}$)	Percentage recovered	Before spike ($\mu\text{g/L}$)	After spike ($\mu\text{g/L}$)	Percentage recovered	Before spike ($\mu\text{g/L}$)	After spike ($\mu\text{g/L}$)	Percentage recovered
09/13/2000 1130	Matrix spike	5.0	0.66	5.4	94.8	0.49	4.9	88.2	1.5	6.0	90.0
09/13/2000 1130	Matrix spike duplicate	5.0	0.66	5.7	100.8	0.49	5.0	90.2	1.5	6.2	94.0
09/13/2000 1330	Matrix spike	5.0	0.71	5.5	95.8	0.52	4.8	85.6	1.5	6.1	92.0
09/13/2000 1330	Matrix spike duplicate	5.0	0.71	5.4	93.8	0.52	4.9	87.6	1.5	6.3	96.0
03/02/2001 1230	Matrix spike	5.0	<0.25	4.7	>89.0	<0.25	4.9	>93.0	0.83	5.9	101.4
03/02/2001 1230	Matrix spike duplicate	5.0	<0.25	4.7	>89.0	<0.25	4.9	>93.0	0.83	5.8	99.4

Table 8. Volatile organic compound results for replicate samples analyzed by different laboratories

[µg/L, micrograms per liter; USGS, U.S. Geological Survey; NWQL, National Water Quality Laboratory; GC, gas chromatograph; --, no data; <, less than; VBW, volatile blank water; All replicates were collected from the spring using dip-sampling methods and analyzed using the portable GC. For sampling times with multiple replicates analyzed using the portable GC, the average concentration from table 17 is listed]

Type of sample	Sample date and time	Tetrachloroethylene			Trichloroethylene			1,1-Dichloroethylene			1,1,1-Trichloroethane		
		Concentration (µg/L)			Concentration (µg/L)			Concentration (µg/L)			Concentration (µg/L)		
		Replicate analyzed by the USGS	Replicate(s) analyzed using the portable GC	Percent difference	Replicate analyzed by the USGS	Replicate(s) analyzed using the portable GC	Percent difference	Replicate analyzed by the USGS	Replicate(s) analyzed using the portable GC	Percent difference	Replicate analyzed by the USGS	Replicate(s) analyzed using the portable GC	Percent difference
Big Spring	03/23/2000 0950	2.7	3.0	11.1	8.5	7.6	-10.6	0.95	--	--	0.59	--	--
Big Spring	06/20/2000 1000	2.6	2.1	-19.2	8.6	7.5	-12.8	0.77	1.4	81.8	0.52	0.40	-23.1
Big Spring	09/13/2000 0800	3.0	2.9	-3.3	11	9.3	-15.5	0.96	1.7	77.1	0.64	0.61	-4.7
Big Spring	09/13/2000 1000	2.9	2.7	-6.9	10	9.0	-10.0	0.88	1.0	13.6	0.61	0.52	-14.8
Big Spring	09/13/2000 1200	2.9	2.5	-13.8	10	8.3	-17.0	0.85	1.3	52.9	0.59	0.48	-18.6
Big Spring	09/13/2000 1400	2.8	2.5	-10.7	10	8.3	-17.0	0.84	1.5	78.6	0.59	0.48	-18.6
Big Spring	12/14/2000 0945	3.0	3.1	3.3	11	8.7	-20.9	0.93	0.87	-6.5	0.56	0.52	-7.1
Big Spring	01/04/2001 1030	2.6	3.0	15.4	10	7.6	-24.0	0.84	0.71	-15.5	0.47	0.36	-23.4
Big Spring	02/08/2001 1030	3.2	3.1	-3.1	11	8.1	-26.4	0.95	0.86	-9.5	0.57	0.39	-31.6
Big Spring	02/16/2001 1330	2.9	3.0	3.4	9.8	7.5	-23.5	0.81	1.2	48.1	0.51	<0.30	--
Big Spring	03/15/2001 1030	2.7	2.3	-14.8	9.2	6.2	-32.6	0.88	0.71	-19.3	0.46	<0.25	--
Big Spring	04/25/2001 0800	2.5	3.0	20.0	8.5	7.2	-15.3	0.85	0.78	-8.2	0.48	<0.25	--
Big Spring	05/02/2001 1330	2.1	2.3	9.5	7.6	6.0	-21.1	0.69	0.63	-8.7	0.41	<0.25	--
VBW spike	05/30/2001 1200	0.33	0.34	3.0	0.35	0.35	0.0	0.32	0.66	106.3	0.34	0.60	76.5
VBW spike	05/30/2001 1210	3.2	3.2	0.0	3.6	3.1	-13.9	3.6	3.4	-5.6	3.7	2.3	-37.8
VBW spike	05/30/2001 1220	4.0	3.7	-7.5	4.5	3.8	-15.6	4.5	3.9	-13.3	4.7	2.9	-38.3
VBW spike	05/30/2001 1230	5.2	4.5	-13.5	5.9	4.6	-22.0	5.7	4.9	-14.0	6.1	3.6	-41.0
VBW spike	05/30/2001 1240	7.6	5.9	-22.4	8.6	6.4	-25.6	8.6	6.9	-19.8	9.0	5.2	-42.2
VBW spike	05/30/2001 1300	6.3	5.1	-19.0	7.3	5.4	-26.0	6.4	5.8	-9.4	7.4	4.2	-43.2

Table 9. Volatile organic compound results for field-matrix spike samples collected at Big Spring

[$\mu\text{g/L}$, micrograms per liter; <, less than; >, greater than; All samples were analyzed using the portable gas chromatograph. For sampling times with multiple dip replicates, the average concentration from table 17 is listed]

Sample date and time	Description	Spike concentration ($\mu\text{g/L}$)	Tetrachloroethylene			Trichloroethylene			1,1-Dichloroethylene			1,1,1-Trichloroethane		
			Before spike ($\mu\text{g/L}$)	After spike ($\mu\text{g/L}$)	Percentage recovered	Before spike ($\mu\text{g/L}$)	After spike ($\mu\text{g/L}$)	Percentage recovered	Before spike ($\mu\text{g/L}$)	After spike ($\mu\text{g/L}$)	Percentage recovered	Before spike ($\mu\text{g/L}$)	After spike ($\mu\text{g/L}$)	Percentage recovered
09/13/2000 1200	Matrix spike	5.0	2.5	8.5	120.0	8.3	15.0	134.0	1.3	6.3	100.0	0.48	5.3	96.4
03/02/2001 1045	Matrix spike	5.0	3.0	7.1	82.0	7.7	13.0	106.0	0.84	5.6	95.2	<0.25	5.4	>103.0
03/02/2001 1045	Matrix spike duplicate.	5.0	3.0	7.0	80.0	7.7	13.0	106.0	0.84	5.5	93.2	<0.25	5.5	>105.0

Table 10. Chloroform results for concurrent replicate samples collected at Wilson Spring

[All replicates were collected from the flume using dip-sampling methods and were analyzed using the portable gas chromatograph]

Sample date and time	Chloroform concentration (milligrams per liter)			Relative percent difference
	Replicate 1	Replicate 2	Average	
03/22/2000 1200	1.2	1.3	1.2	8.0
06/13/2000 0930	2.8	3.1	3.0	10.2
11/15/2000 1040	1.6	1.4	1.5	13.3
12/18/2000 1400	1.6	1.7	1.6	6.1
12/20/2000 1050	1.7	1.7	1.7	0.0
01/10/2001 1420	1.6	1.5	1.6	6.5
01/18/2001 1210	2.5	2.4	2.4	4.1
01/22/2001 1300	1.4	1.4	1.4	0.0
01/26/2001 0930	1.4	1.5	1.4	6.9
02/07/2001 1040	1.5	1.7	1.6	12.5
02/10/2001 1000	2.5	2.5	2.5	0.0
02/14/2001 1000	1.0	0.91	1.0	9.4
02/16/2001 0920	0.72	0.73	0.73	1.4
02/21/2001 1100	1.5	1.3	1.4	14.3
03/12/2001 1500	1.9	1.7	1.8	11.1
03/19/2001 1410	1.6	1.5	1.6	6.5
03/28/2001 1410	1.7	1.6	1.6	6.1
04/04/2001 1340	2.7	2.6	2.6	3.8
04/11/2001 1330	2.5	2.5	2.5	0.0
04/14/2001 1200	1.1	1.1	1.1	0.0
04/16/2001 1310	1.2	1.2	1.2	0.0
04/18/2001 1100	1.1	1.1	1.1	0.0
04/24/2001 1240	1.7	1.8	1.8	5.7
04/25/2001 1100	1.7	1.7	1.7	0.0

Table 11. Chloroform results for replicate samples collected from different locations at Wilson Spring

[All replicates were collected using dip-sampling methods and were analyzed using the portable gas chromatograph. For sampling times with multiple replicates from the flume, the average concentration from table 10 is listed]

Sample date and time	Chloroform concentration (milligrams per liter)		
	Replicate(s) collected from the flume	Replicate collected from the tub	Percent difference
06/13/2000 1130	3.3	3.2	-3.0
06/13/2000 1500	2.0	2.1	5.0
11/09/2000 1100	7.4	7.7	4.1
11/09/2000 1300	7.3	5.6	-23.3
11/10/2000 1100	3.2	3.2	0.0
11/10/2000 1200	3.2	2.8	-12.5
11/25/2000 1020	3.4	3.4	0.0
11/27/2000 1150	1.9	1.8	-5.3
11/30/2000 1230	1.6	1.5	-6.2
12/08/2000 1430	1.0	0.94	-6.0
12/14/2000 0700	2.8	2.8	0.0
12/14/2000 0800	2.7	2.7	0.0
12/15/2000 1200	1.9	1.9	0.0
12/27/2000 1030	2.0	2.1	5.0
01/12/2001 0810	1.8	1.9	5.6
02/07/2001 1040	1.6	1.7	6.2
02/12/2001 1030	1.5	1.7	13.3
02/14/2001 0920	1.0	0.92	-8.0
02/14/2001 1000	1.0	1.0	0.0
02/23/2001 1410	1.3	1.2	-7.7
02/25/2001 1419	1.0	1.0	0.0
03/20/2001 1000	1.3	1.3	0.0
03/21/2001 1000	0.92	0.88	-4.3
03/23/2001 1200	1.2	1.2	0.0
04/12/2001 1400	2.6	2.6	0.0
04/13/2001 1159	1.1	1.2	9.1
05/02/2001 0850	2.7	2.7	0.0

Table 12. Chloroform results for replicate samples collected using different methods at Wilson Spring

[°C, degrees Celsius; --, no data; All samples were analyzed using the portable gas chromatograph. Dip samples were collected from either the tub or the flume. For sampling times with multiple dip replicates collected from the flume, the average concentration from table 10 is listed]

Sample date and time	Number of hours until sample was preserved	Air temperature in sampler house			Chloroform concentration (milligrams per liter)		
				Replicate(s) collected using dip-sampling methods	Replicate collected using automatic sampler	Percent difference	
		Minimum (°C)	Maximum (°C)				
11/08/2000 1100	24	--	--	0.60	0.69	15.0	
11/09/2000 1300	22	--	--	5.6	7.1	26.8	
11/10/2000 1100	0	--	--	3.2	3.2	0.0	
11/10/2000 1200	95	--	--	2.8	2.2	-21.4	
11/25/2000 1020	49	--	--	3.4	3.8	11.8	
12/14/2000 0800	28	--	--	2.7	2.8	3.7	
12/15/2000 1200	21	--	--	1.9	1.9	0.0	
12/27/2000 1030	0	--	--	2.1	2.0	-4.8	
01/12/2001 0810	25	--	--	1.8	1.9	5.6	
01/18/2001 1210	21	--	--	2.4	2.5	4.2	
01/19/2001 1010	29	--	--	1.0	1.1	10.0	
01/22/2001 1300	94	--	--	1.4	1.4	0.0	
01/30/2001 0720	28	--	--	1.8	1.7	-5.6	
01/31/2001 1300	0	--	--	1.3	1.4	7.7	
02/12/2001 1030	47	--	--	1.7	1.5	-11.8	
02/14/2001 1000	47	--	--	1.0	1.0	0.0	
02/16/2001 1100	23	--	--	0.63	0.63	0.0	
02/17/2001 1010	70	--	--	0.86	0.81	-5.8	
02/22/2001 1220	26	--	--	1.1	1.3	18.2	
02/25/2001 1419	0	--	--	1.0	0.91	-9.0	
02/25/2001 1440	23	--	--	1.0	0.91	-9.0	
03/12/2001 1500	23	10.0	30.0	1.8	1.6	-11.1	
03/15/2001 1300	97	6.5	24.5	2.3	2.0	-13.0	
03/20/2001 0919	0	8.0	11.5	1.6	1.8	12.5	
03/20/2001 1000	24	8.0	11.5	1.3	1.3	0.0	
03/21/2001 1000	50	6.5	23.5	0.88	0.87	-1.1	
04/04/2001 1340	168	20.0	40.0	2.7	2.5	-7.4	
04/11/2001 1330	25	23.0	36.0	2.5	2.6	4.0	
04/13/2001 1159	24	15.5	26.5	1.2	1.1	-8.3	
04/14/2001 1200	49	15.5	26.5	1.1	1.1	0.0	
04/16/2001 1310	44	6.5	25.0	1.2	1.3	8.3	
05/02/2001 0850	0	--	--	2.7	2.7	0.0	

Table 13. Chloroform results for trip blanks associated with samples collected at Wilson Spring

[<, less than; All trip blanks were analyzed using the portable gas chromatograph]

Date and time		Chloroform concentration (milligrams per liter)
Blank was placed in automatic sampler	Blank was removed from automatic sampler	
11/08/2000 1100	11/09/2000 1100	<0.25
11/09/2000 1300	11/10/2000 1100	<0.25
11/10/2000 1200	11/14/2000 1050	<0.25
11/25/2000 1020	11/27/2000 1140	<0.25
12/08/2000 1430	12/14/2000 0700	<0.25
12/14/2000 0800	12/15/2000 1200	<0.25
12/15/2000 1200	12/16/2000 0900	<0.25
12/18/2000 1500	12/20/2000 1000	<0.25
01/10/2001 1430	01/12/2001 0730	<0.25
01/12/2001 0810	01/13/2001 0930	<0.25
01/13/2001 0930	01/18/2001 1130	<0.25
01/18/2001 1210	01/19/2001 0910	<0.25
01/19/2001 1010	01/20/2001 1515	<0.25
02/10/2001 1000	02/12/2001 1030	<0.25
02/12/2001 1030	02/14/2001 0920	<0.25
02/14/2001 1000	02/16/2001 0920	<0.25
02/16/2001 1100	02/17/2001 1010	<0.25
02/17/2001 1010	02/20/2001 0820	<0.25
02/22/2001 1410	02/23/2001 1410	<0.25
02/23/2001 1410	02/25/2001 1419	<0.25
03/13/2001 1330	03/15/2001 1300	<0.25
03/19/2001 1410	03/20/2001 0940	<0.25
03/20/2001 1000	03/21/2001 1000	<0.25
03/21/2001 1000	03/23/2001 1210	<0.25
04/04/2001 1000	04/11/2001 1330	<0.25
04/12/2001 1400	04/13/2001 1200	<0.25
04/16/2001 1310	04/18/2001 0900	<0.25
04/18/2001 1100	04/24/2001 1240	<0.25

Table 14. Chlorinated-ethylene results for concurrent replicate samples collected at Cascade Spring

[µg/L, micrograms per liter; <, less than; --, no data; All replicates were collected using dip-sampling methods and were analyzed using the portable gas chromatograph]

Sample date and time	Tetrachloroethylene				Trichloroethylene				cis-1,2-Dichloroethylene			
	Concentration (µg/L)		Relative percent difference	Replicate	Concentration (µg/L)		Relative percent difference	Replicate	Concentration (µg/L)		Relative percent difference	
	1	2			Average	1			1	2		
03/23/2000 0945	0.39	0.31	0.35	22.9	<0.25	<0.25	<0.25	--	--	--	--	
07/05/2000 1500	0.61	0.65	0.63	6.3	<0.25	0.54	--	--	1.4	1.3	1.4	7.4
08/03/2000 1130	0.51	0.52	0.52	1.9	<0.25	0.33	--	--	1.8	1.7	1.8	5.7
11/08/2000 1230	0.37	0.41	0.39	10.3	<0.25	<0.25	<0.25	--	1.4	1.4	1.4	0.0
11/13/2000 1045	--	0.40	--	--	<0.25	<0.25	<0.25	--	1.4	1.4	1.4	0.0
11/15/2000 1500	0.69	0.30	0.50	78.8	<0.25	<0.25	<0.25	--	1.5	1.3	1.4	14.3
11/30/2000 1130	0.25	0.25	0.25	0.0	<0.25	<0.25	<0.25	--	1.4	1.3	1.4	7.4
12/06/2000 1330	0.27	<0.25	--	--	<0.25	<0.25	<0.25	--	1.3	1.2	1.2	8.0
12/14/2000 0900	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	1.2	1.1	1.2	8.7
12/18/2000 1200	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	1.1	1.1	1.1	0.0
12/27/2000 1215	0.50	0.33	0.42	41.0	<0.25	<0.25	<0.25	--	1.2	1.2	1.2	0.0
02/02/2001 1045	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	1.0	1.0	1.0	0.0
02/16/2001 1245	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.51	0.44	0.48	14.7
02/17/2001 1245	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.52	0.50	0.51	3.9
02/22/2001 1330	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.84	0.81	0.83	3.6
03/02/2001 1230	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.83	0.82	0.83	1.2
03/20/2001 1100	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.66	0.57	0.62	14.6
04/12/2001 1400	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.77	0.76	0.77	1.3
04/13/2001 1359	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.58	0.52	0.55	10.9
04/14/2001 1000	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.68	0.54	0.61	23.0
04/16/2001 1100	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.63	0.65	0.64	3.1
04/18/2001 1200	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	0.67	0.69	0.68	2.9
04/25/2001 0900	<0.25	<0.25	<0.25	--	<0.25	<0.25	<0.25	--	1.0	0.90	1.0	10.5
05/02/2001 1200	0.29	<0.25	--	--	<0.25	<0.25	<0.25	--	1.0	1.0	1.0	0.0

Table 15. Chlorinated-ethylene results for replicate samples collected using different methods at Cascade Spring

[°C, degrees Celsius; µg/L, micrograms per liter; --, no data; <, less than; All replicates were analyzed using the portable gas chromatograph. For sampling times with multiple replicates collected using dip-sampling methods, the average concentration from table 14 is listed]

Sample date and time	Number of hours until sample was preserved	Tetrachloroethylene			Trichloroethylene			cis-1,2-Dichloroethylene		
		Air temperature in sampler house		Concentration (µg/L)		Concentration (µg/L)		Concentration (µg/L)		
		Minimum (°C)	Maximum (°C)	Replicate(s) collected using dip-sampling methods	Replicate collected using automatic sampler	Replicate(s) collected using dip-sampling methods	Replicate collected using automatic sampler	Replicate(s) collected using dip-sampling methods	Replicate collected using automatic sampler	Percent difference
02/10/2001 1215	48	--	--	0.27	<0.25	--	<0.25	<0.25	--	10.0
02/12/2001 1215	47	--	--	<0.25	<0.25	--	<0.25	<0.25	--	0.0
02/14/2001 1130	47	--	--	<0.25	<0.25	--	<0.25	<0.25	--	34.1
02/16/2001 1245	24	--	--	<0.25	<0.25	--	<0.25	<0.25	--	-2.1
02/17/2001 1245	71	--	--	<0.25	<0.25	--	<0.25	<0.25	--	-2.0
04/13/2001 1359	0	16.0	21.0	<0.25	<0.25	--	<0.25	<0.25	--	-3.6
04/14/2001 1000	48	15.0	23.0	<0.25	<0.25	--	<0.25	<0.25	--	8.2
04/16/2001 1100	49	12.0	24.5	<0.25	<0.25	--	<0.25	<0.25	--	-4.7
05/02/2001 1200	0	--	--	<0.25	<0.25	--	<0.25	<0.25	--	-3.0

Table 16. Volatile organic compound results for trip blanks associated with samples collected at Cascade and Big Springs

[<, less than; All trip blanks were analyzed using the portable gas chromatograph]

Blank placed in automatic sampler	Blank removed from automatic sampler	Date analyzed	Concentration (micrograms per liter)				
			Tetrachloroethylene	Trichloroethylene	cis-1,2-Dichloroethylene	1,1-Dichloroethylene	1,1,1-Trichloroethane
02/08/2001 1545	02/10/2001 1215	2/21/01	<0.25	<0.25	<0.25	<0.25	<0.25
02/10/2001 1215	02/12/2001 1215	2/28/01	<0.25	<0.25	<0.25	<0.25	<0.25
02/12/2001 1215	02/14/2001 1130	2/28/01	<0.25	<0.25	<0.25	<0.25	<0.25
02/14/2001 1130	02/16/2001 1215	2/28/01	<0.25	<0.25	<0.25	<0.25	<0.25
02/16/2001 1245	02/17/2001 1245	2/28/01	<0.25	<0.25	<0.25	<0.25	<0.25
02/17/2001 1245	02/21/2001 1315	2/28/01	<0.25	<0.25	<0.25	<0.25	<0.25
04/04/2001 0830	04/12/2001 1400	4/20/01	<0.25	<0.25	<0.25	<0.25	<0.25
04/12/2001 1400	04/13/2001 1500	4/20/01	<0.25	<0.25	<0.25	<0.25	<0.25
04/13/2001 1500	04/14/2001 1000	4/20/01	<0.25	<0.25	<0.25	<0.25	<0.25
04/14/2001 1000	04/16/2001 1100	4/20/01	<0.25	<0.25	<0.25	<0.25	<0.25
04/16/2001 1100	04/18/2001 1200	4/20/01	<0.25	<0.25	<0.25	<0.25	<0.25

Table 17. Volatile organic compound results for concurrent replicate samples collected at Big Spring

[µg/L, micrograms per liter; --, no data; <, less than; All replicates were collected using dip-sampling methods and were analyzed using the portable gas chromatograph]

Sample date and time	Tetrachloroethylene				Trichloroethylene				1,1-Dichloroethylene				1,1,1-Trichloroethane			
	Concentration (µg/L)			Relative percent difference	Concentration (µg/L)			Relative percent difference	Concentration (µg/L)			Relative percent difference	Concentration (µg/L)			Relative percent difference
	Replicate	1	2		Replicate	1	2		Replicate	1	2		Replicate	1	2	
03/23/2000 0950	2.9	3.0	3.0	3.4	7.5	7.6	7.6	1.3	--	--	--	--	--	--	--	--
04/10/2000 1320	3.0	3.1	3.0	3.3	8.7	8.9	8.8	2.3	--	--	--	--	--	--	--	--
06/20/2000 0840	2.3	2.2	2.2	4.4	7.3	7.4	7.4	1.4	1.9	0.98	1.4	64.9	0.42	0.38	0.40	10.0
07/05/2000 1430	2.3	2.3	2.3	0.0	7.5	7.4	7.4	1.3	1.2	1.0	1.1	18.2	0.34	0.36	0.35	5.7
07/24/2000 1030	2.8	2.9	2.8	3.5	7.6	7.8	7.7	2.6	2.2	1.8	2.0	20.0	0.32	0.34	0.33	6.1
07/31/2000 0930	2.3	2.4	2.4	4.3	7.0	7.4	7.2	5.6	1.0	0.97	0.99	3.0	0.55	0.56	0.56	1.8
10/31/2000 1045	3.6	3.5	3.6	2.8	9.2	9.2	9.2	0.0	0.97	1.1	1.0	12.6	0.83	0.73	0.78	12.8
11/24/2000 0930	3.5	3.5	3.5	0.0	9.3	9.2	9.2	1.1	0.99	0.93	0.96	6.2	0.77	0.66	0.72	15.4
12/06/2000 1515	3.1	3.0	3.0	3.3	8.6	8.6	8.6	0.0	0.86	0.84	0.85	2.4	0.57	0.55	0.56	3.6
12/27/2000 1230	3.1	3.1	3.1	0.0	8.0	8.0	8.0	0.0	0.75	0.76	0.76	1.3	0.45	0.42	0.44	6.9
01/26/2001 1330	2.7	2.6	2.6	3.8	7.1	7.0	7.0	1.4	0.71	0.71	0.71	0.0	0.27	0.27	0.27	0.0
02/16/2001 1330	3.1	3.0	3.0	3.3	7.7	7.3	7.5	5.3	1.2	1.1	1.2	8.7	0.35	<0.25	<0.30	--
02/17/2001 1330	2.7	2.7	2.7	0.0	6.9	6.9	6.9	0.0	0.73	0.71	0.72	2.8	<0.25	<0.25	<0.25	--
03/02/2001 1045	3.0	3.0	3.0	0.0	7.7	7.7	7.7	0.0	0.86	0.82	0.84	4.8	0.25	<0.25	<0.25	--
03/21/2001 1430	2.3	2.3	2.3	0.0	6.0	6.2	6.1	3.3	0.65	0.66	0.66	1.5	<0.25	<0.25	<0.25	--
04/11/2001 1700	2.2	2.1	2.2	4.6	5.7	5.5	5.6	3.6	0.53	0.54	0.54	1.9	<0.25	<0.25	<0.25	--
04/18/2001 1345	2.5	2.5	2.5	0.0	6.3	6.4	6.4	1.6	0.66	0.67	0.67	1.5	<0.25	<0.25	<0.25	--
04/25/2001 0800	3.0	2.9	3.0	3.4	7.2	7.1	7.2	1.4	0.80	0.76	0.78	5.1	<0.25	<0.25	<0.25	--
05/02/2001 1330	2.3	2.3	2.3	0.0	6.1	6.0	6.0	1.6	0.64	0.61	0.63	4.8	<0.25	<0.25	<0.25	--

Table 18. Chloroform results for equipment blanks collected at Wilson Spring

[<, less than; VBW, volatile blank water; all samples were analyzed using the portable gas chromatograph]

Sample date and time	Source of water	Sample collection method	Sample description	Chloroform concentration, in micrograms per liter
05/02/2001 0750	Flume at Wilson Spring	Dip	Wilson Spring replicate 1	2,700
05/02/2001 0750	Tub at Wilson Spring	Dip	Wilson Spring replicate 2	2,700
05/02/2001 0750	Tub at Wilson Spring	Automatic sampler	Wilson Spring replicate 3	2,700
05/02/2001 0755	VBW container	Dip	VBW before equipment blanks	<0.25
<i>Automatic sampler pump removed from tub, rinsed with VBW, and placed in VBW container</i>				
05/02/2001 0800	VBW container	Automatic sampler	Equipment blank 1	25
05/02/2001 0805	VBW container	Automatic sampler	Equipment blank 2	7.1
05/02/2001 0810	VBW container	Automatic sampler	Equipment blank 3	5.6
05/02/2001 0815	VBW container	Dip	VBW after equipment blanks	4.4

Table 19. Chlorinated-ethylene results for equipment blanks collected at Cascade Spring

[PCE, tetrachloroethylene; TCE, trichloroethylene; cis-1,2-DCE, cis-1,2-dichloroethylene; <, less than; VBW, volatile blank water; All samples were analyzed using the portable gas chromatograph]

Sample date and time	Source of water	Sample collection method	Sample description	Concentration, in micrograms per liter		
				PCE	TCE	cis-1,2-DCE
05/02/2001 1100	Cascade Spring	Dip	Cascade Spring replicate 1	0.29	<0.25	0.98
05/02/2001 1100	Cascade Spring	Dip	Cascade Spring replicate 2	<0.25	<0.25	1.0
05/02/2001 1100	Cascade Spring	Automatic sampler	Cascade Spring replicate 3	<0.25	<0.25	0.97
05/02/2001 1105	VBW container	Dip	VBW before equipment blanks	<0.25	<0.25	<0.25
<i>Automatic sampler pump removed from tub, rinsed with VBW, and placed in VBW container</i>						
05/02/2001 1110	VBW container	Automatic sampler	Equipment blank 1	<0.25	<0.25	<0.25
05/02/2001 1115	VBW container	Automatic sampler	Equipment blank 2	<0.25	<0.25	<0.25
05/02/2001 1120	VBW container	Automatic sampler	Equipment blank 3	<0.25	<0.25	<0.25
05/02/2001 1125	VBW container	Dip	VBW after equipment blanks	<0.25	<0.25	<0.25

Table 20. Chloroform data collected at Wilson Spring

[ft³/s, cubic feet per second; °C, degrees Celsius; µS/cm, microsiemens per centimeter; mg/L, milligrams per liter; GC, gas chromatograph; *, discharge data obtained from AMEC; --, no data]

Date and time	Gage height (feet above datum)	Discharge (ft ³ /s)	Water-quality characteristic			Volatile organic compound data		
			Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection		Chloroform (mg/L)
						Sample analysis		
03/22/2000 1200	0.45	0.384	14.5	357	7.5	Dip	Portable GC	1.2
04/03/2000 1215	1.17*	3.016*	14.5	376	7.3	Dip	Portable GC	1.2
04/03/2000 1230	1.24*	3.475*	14.5	377	7.3	Dip	Portable GC	1.3
04/03/2000 1245	1.30*	3.872*	14.5	377	7.3	Dip	Portable GC	1.2
04/03/2000 1300	1.35*	4.235*	14.5	371	7.2	Dip	Portable GC	1.3
04/03/2000 1330	1.42*	4.782*	14.5	303	7.2	Dip	Portable GC	1.3
04/10/2000 0959	0.38	0.270	14.5	409	7.2	Dip	Portable GC	1.3
05/15/2000 1314	0.19	0.062	--	451	7.5	Dip	Portable GC	2.7
05/22/2000 0959	0.14	0.035	--	457	7.3	Dip	Portable GC	4.7
06/13/2000 0929	0.08	0.011	--	--	--	Dip	Portable GC	2.9
06/13/2000 1030	0.08	0.011	--	--	--	Dip	Portable GC	3.2
06/13/2000 1130	0.08	0.011	--	--	--	Dip	Portable GC	3.3
06/13/2000 1230	0.08	0.011	--	--	--	Dip	Portable GC	3.2
06/13/2000 1330	0.08	0.011	--	--	--	Dip	Portable GC	3.1
06/13/2000 1430	0.08	0.011	--	--	--	Dip	Portable GC	2.1
06/13/2000 1500	0.08	0.011	--	--	--	Dip	Portable GC	2.0
06/13/2000 1530	0.08	0.011	--	--	--	Dip	Portable GC	1.9
06/13/2000 1615	0.08	0.011	--	--	--	Dip	Portable GC	2.3
06/14/2000 1300	0.08	0.011	--	--	--	Dip	Portable GC	2.5
06/19/2000 1130	0.11*	0.024*	--	--	--	Dip	Portable GC	2.3
06/19/2000 1230	0.11*	0.024*	17.0	500	7.0	Dip	Portable GC	2.7
07/21/2000 1329	0.05*	0.006*	18.0	523	7.0	Dip	Portable GC	1.4
08/14/2000 1014	0.03*	0.003*	19.5	508	7.6	Dip	Portable GC	0.86
09/12/2000 0900	0.04*	0.003*	19.5	490	7.3	Dip	Portable GC	0.76
09/12/2000 1000	0.04*	0.003*	19.5	521	7.2	Dip	Portable GC	1.0
09/12/2000 1100	0.03*	0.002*	20.0	521	7.2	Dip	Portable GC	1.0
09/12/2000 1130	0.04*	0.003*	21.0	520	7.2	Dip	Portable GC	0.98
09/12/2000 1200	0.07*	0.010*	20.0	517	7.2	Dip	Portable GC	1.1
09/12/2000 1230	0.09	0.014	19.0	522	7.1	Dip	Portable GC	1.2
09/12/2000 1300	0.10	0.018	19.0	520	7.1	Dip	Portable GC	1.2
09/12/2000 1330	0.10	0.018	18.5	520	7.1	Dip	Portable GC	1.2
09/12/2000 1400	0.10	0.018	18.5	519	7.1	Dip	Portable GC	1.2
09/12/2000 1500	0.11	0.021	18.5	519	7.1	Dip	Portable GC	1.3
09/12/2000 1530	0.10	0.018	--	--	--	Dip	Portable GC	1.3
11/02/2000 0800	0.04*	0.003*	16.5	418	8.1	Dip	Portable GC	0.23
11/06/2000 1140	0.04*	0.004*	17.0	433	8.2	Dip	Portable GC	0.24
11/08/2000 0830	0.05*	0.005*	18.0	447	8.0	Dip	Portable GC	0.56
11/08/2000 0930	0.05*	0.006*	18.0	446	8.0	Dip	Portable GC	0.52
11/08/2000 1000	0.05*	0.006*	18.0	452	8.0	Dip	Portable GC	0.64
11/08/2000 1030	0.06*	0.007*	18.0	453	8.0	Dip	Portable GC	0.62

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic				Volatile organic compound data		
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection		Chloroform (mg/L)
						Sample analysis	Chloroform (mg/L)	
11/08/2000 1100	0.06*	0.007*	18.0	453	8.0	Dip	Portable GC	0.60
11/08/2000 1200	0.06*	0.008*	18.0	457	8.0	Automatic sampler	Portable GC	0.71
11/08/2000 1300	0.07*	0.010*	18.0	460	7.9	Automatic sampler	Portable GC	0.75
11/08/2000 1400	0.08	0.011	18.5	468	7.7	Automatic sampler	Portable GC	1.4
11/08/2000 1500	0.08	0.011	18.5	470	7.6	Automatic sampler	Portable GC	2.1
11/08/2000 1600	0.08	0.011	18.5	467	7.5	Automatic sampler	Portable GC	2.3
11/08/2000 1700	0.08	0.011	18.5	463	7.5	Automatic sampler	Portable GC	2.0
11/08/2000 1800	0.08	0.011	18.5	461	7.5	Automatic sampler	Portable GC	2.0
11/08/2000 1900	0.08	0.011	18.5	463	7.5	Automatic sampler	Portable GC	1.9
11/08/2000 2000	0.08	0.011	18.5	464	7.6	Automatic sampler	Portable GC	1.7
11/08/2000 2100	0.10	0.018	18.5	472	7.5	Automatic sampler	Portable GC	1.6
11/08/2000 2200	0.12	0.025	18.5	480	7.5	Automatic sampler	Portable GC	1.6
11/08/2000 2300	0.15	0.038	18.5	482	7.5	Automatic sampler	Portable GC	1.6
11/09/2000 0000	0.22	0.086	18.5	388	7.3	Automatic sampler	Portable GC	1.2
11/09/2000 0100	0.27	0.136	18.0	463	7.3	Automatic sampler	Portable GC	2
11/09/2000 0200	0.36	0.241	18.0	498	7.3	Automatic sampler	Portable GC	4
11/09/2000 0300	0.45	0.384	17.5	492	7.2	Automatic sampler	Portable GC	4.8
11/09/2000 0400	0.47	0.421	17.5	494	7.2	Automatic sampler	Portable GC	11
11/09/2000 0500	0.49	0.460	17.5	493	7.1	Automatic sampler	Portable GC	34
11/09/2000 0600	0.50	0.480	17.5	473	7.1	Automatic sampler	Portable GC	31
11/09/2000 0700	0.52	0.521	17.5	492	7.0	Automatic sampler	Portable GC	27
11/09/2000 0800	0.51	0.500	17.5	512	7.0	Automatic sampler	Portable GC	24
11/09/2000 0900	0.47	0.428	17.5	516	7.0	Automatic sampler	Portable GC	18
11/09/2000 1000	0.43	0.349	17.5	517	7.0	Automatic sampler	Portable GC	14
11/09/2000 1100	0.39	0.290	17.5	518	7.0	Dip	Portable GC	7.4
11/09/2000 1300	0.35	0.227	17.5	522	7.1	Dip	Portable GC	7.3
11/09/2000 1400	0.34	0.214	17.5	523	7.1	Automatic sampler	Portable GC	6.3
11/09/2000 1500	0.33	0.201	17.5	525	7.1	Automatic sampler	Portable GC	5.8
11/09/2000 1600	0.32	0.189	17.5	527	7.2	Automatic sampler	Portable GC	5.6
11/09/2000 1700	0.31	0.177	17.5	528	7.2	Automatic sampler	Portable GC	5.4
11/09/2000 1800	0.30	0.165	17.5	529	7.2	Automatic sampler	Portable GC	5.1
11/09/2000 1900	0.29	0.154	17.5	530	7.3	Automatic sampler	Portable GC	5.0
11/09/2000 2000	0.28	0.143	17.5	532	7.3	Automatic sampler	Portable GC	4.7
11/09/2000 2100	0.27	0.133	17.5	534	7.3	Automatic sampler	Portable GC	4.3
11/09/2000 2200	0.27	0.133	17.5	535	7.4	Automatic sampler	Portable GC	4.2
11/09/2000 2300	0.26	0.123	17.5	537	7.4	Automatic sampler	Portable GC	3.9
11/10/2000 0000	0.25	0.113	17.5	540	7.4	Automatic sampler	Portable GC	4.0
11/10/2000 0100	0.24	0.104	17.5	543	7.5	Automatic sampler	Portable GC	3.8
11/10/2000 0200	0.24	0.104	17.5	546	7.5	Automatic sampler	Portable GC	3.5
11/10/2000 0300	0.24	0.101	17.5	548	7.5	Automatic sampler	Portable GC	3.4
11/10/2000 0400	0.23	0.095	17.5	551	7.6	Automatic sampler	Portable GC	3.4

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Discharge (ft ³ /s)	Water-quality characteristic			Volatile organic compound data		
			Temperature (°C)	Specific conductance (μS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
11/10/2000 0500	0.22	0.087	17.5	554	7.6	Automatic sampler	Portable GC	3.2
11/10/2000 0600	0.22	0.087	17.5	557	7.6	Automatic sampler	Portable GC	3.4
11/10/2000 0700	0.21	0.081	17.5	560	7.6	Automatic sampler	Portable GC	3.3
11/10/2000 0800	0.21	0.079	17.5	562	7.6	Automatic sampler	Portable GC	3.1
11/10/2000 0900	0.20	0.071	17.5	564	7.6	Automatic sampler	Portable GC	3.0
11/10/2000 1000	0.20	0.071	17.5	566	7.7	Automatic sampler	Portable GC	3.1
11/10/2000 1100	0.20	0.069	17.5	568	7.7	Dip	Portable GC	3.2
11/10/2000 1200	0.19	0.064	17.5	570	7.7	Dip	Portable GC	3.2
11/10/2000 1600	0.18	0.057	17.5	579	7.7	Automatic sampler	Portable GC	2.8
11/10/2000 2000	0.17	0.051	17.5	587	7.8	Automatic sampler	Portable GC	2.8
11/11/2000 0000	0.17	0.051	17.0	595	7.8	Automatic sampler	Portable GC	2.7
11/11/2000 0400	0.16	0.045	17.0	603	7.8	Automatic sampler	Portable GC	2.7
11/11/2000 0800	0.16	0.045	17.0	609	7.8	Automatic sampler	Portable GC	2.7
11/11/2000 1200	0.15	0.040	17.5	615	7.8	Automatic sampler	Portable GC	3.0
11/11/2000 1600	0.15	0.040	17.5	622	7.8	Automatic sampler	Portable GC	3.0
11/11/2000 2000	0.15	0.040	17.0	625	7.8	Automatic sampler	Portable GC	2.6
11/12/2000 0000	0.14	0.035	17.0	627	7.9	Automatic sampler	Portable GC	2.6
11/12/2000 0400	0.14	0.035	17.0	629	7.9	Automatic sampler	Portable GC	2.4
11/12/2000 0800	0.14	0.035	17.0	629	7.9	Automatic sampler	Portable GC	2.4
11/12/2000 1200	0.13	0.030	17.5	630	7.9	Automatic sampler	Portable GC	2.6
11/12/2000 1600	0.13	0.030	17.5	632	7.8	Automatic sampler	Portable GC	2.6
11/12/2000 2000	0.13	0.030	17.5	632	7.9	Automatic sampler	Portable GC	2.2
11/13/2000 0000	0.12	0.025	17.0	631	7.9	Automatic sampler	Portable GC	2.2
11/13/2000 0400	0.13	0.030	17.5	631	7.9	Automatic sampler	Portable GC	2.0
11/13/2000 0800	0.12	0.025	17.5	632	7.9	Automatic sampler	Portable GC	2.3
11/13/2000 1200	0.12	0.025	17.5	631	7.9	Automatic sampler	Portable GC	2.3
11/13/2000 1600	0.12	0.025	17.5	632	7.9	Automatic sampler	Portable GC	2.3
11/13/2000 2000	0.12	0.025	17.0	632	7.9	Automatic sampler	Portable GC	2.2
11/14/2000 0000	0.11	0.021	17.0	631	8.0	Automatic sampler	Portable GC	2.1
11/14/2000 0400	0.11	0.021	17.0	629	8.0	Automatic sampler	Portable GC	1.8
11/15/2000 1040	0.10	0.018	17.0	613	8.0	Dip	Portable GC	1.5
11/20/2000 1410	0.13*	0.031*	17.0	602	7.7	Dip	Portable GC	1.6
11/24/2000 1020	0.09	0.013	16.5	591	7.7	Dip	Portable GC	1.3
11/25/2000 0920	0.30	0.165	17.0	538	7.4	Dip	Portable GC	3.2
11/25/2000 1020	0.30	0.165	17.0	536	7.4	Dip	Portable GC	3.4
11/25/2000 1220	0.29	0.154	17.0	532	7.4	Automatic sampler	Portable GC	4.0
11/25/2000 1420	0.28	0.143	17.0	532	7.4	Automatic sampler	Portable GC	3.9
11/25/2000 1620	0.28	0.143	17.0	532	7.4	Automatic sampler	Portable GC	3.8
11/25/2000 1820	0.26	0.126	17.0	533	7.4	Automatic sampler	Portable GC	3.5
11/25/2000 2020	0.26	0.123	17.0	537	7.4	Automatic sampler	Portable GC	3.3
11/25/2000 2220	0.25	0.113	17.0	542	7.4	Automatic sampler	Portable GC	3.0

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic				Volatile organic compound data		
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
11/26/2000 0020	0.24	0.104	17.0	547	7.5	Automatic sampler	Portable GC	2.8
11/26/2000 0220	0.24	0.104	17.0	552	7.5	Automatic sampler	Portable GC	2.7
11/26/2000 0420	0.23	0.098	17.0	557	7.5	Automatic sampler	Portable GC	2.5
11/26/2000 0620	0.23	0.095	17.0	561	7.5	Automatic sampler	Portable GC	2.6
11/26/2000 0820	0.22	0.089	17.0	566	7.5	Automatic sampler	Portable GC	2.4
11/26/2000 1020	0.23	0.095	17.0	570	7.5	Automatic sampler	Portable GC	2.6
11/26/2000 1220	0.22	0.087	17.0	574	7.5	Automatic sampler	Portable GC	2.5
11/26/2000 1420	0.22	0.084	17.0	579	7.5	Automatic sampler	Portable GC	2.4
11/26/2000 1620	0.21	0.079	17.0	582	7.5	Automatic sampler	Portable GC	2.5
11/26/2000 2020	0.21	0.076	17.0	592	7.6	Automatic sampler	Portable GC	2.3
11/26/2000 2220	0.20	0.071	17.0	595	7.6	Automatic sampler	Portable GC	2.3
11/27/2000 0220	0.20	0.069	17.0	601	7.6	Automatic sampler	Portable GC	2.2
11/27/2000 1140	0.18	0.057	17.0	610	7.6	Dip	Portable GC	1.9
11/30/2000 1230	0.14	0.035	17.0	617	7.8	Dip	Portable GC	1.6
12/08/2000 1430	0.09	0.014	16.0	551	7.9	Dip	Portable GC	1.0
12/13/2000 1530	0.09	0.014	15.0	492	7.9	Automatic sampler	Portable GC	0.47
12/13/2000 1600	0.09	0.014	15.0	486	7.8	Automatic sampler	Portable GC	0.40
12/13/2000 1630	0.09	0.014	15.0	484	7.9	Automatic sampler	Portable GC	0.40
12/13/2000 1700	0.10	0.017	14.5	376	7.8	Automatic sampler	Portable GC	0.36
12/13/2000 1730	0.15	0.038	14.0	300	7.7	Automatic sampler	Portable GC	0.43
12/13/2000 1800	0.16	0.045	13.5	299	7.6	Automatic sampler	Portable GC	0.45
12/13/2000 1830	0.26	0.122	15.5	364	7.6	Automatic sampler	Portable GC	0.69
12/13/2000 1900	0.43	0.348	17.0	456	7.7	Automatic sampler	Portable GC	1.1
12/13/2000 1930	0.77	1.184	16.5	456	7.6	Automatic sampler	Portable GC	3.2
12/13/2000 2000	0.81	1.333	16.5	315	7.3	Automatic sampler	Portable GC	5.8
12/13/2000 2030	0.82	1.366	16.0	307	7.2	Automatic sampler	Portable GC	4.1
12/13/2000 2100	0.82	1.367	15.5	311	7.2	Automatic sampler	Portable GC	2.4
12/13/2000 2130	0.81	1.333	16.0	331	7.1	Automatic sampler	Portable GC	3.1
12/13/2000 2200	0.79	1.277	16.0	349	7.1	Automatic sampler	Portable GC	3.2
12/13/2000 2230	0.78	1.230	16.5	357	7.1	Automatic sampler	Portable GC	3.8
12/13/2000 2300	0.77	1.195	16.5	361	7.1	Automatic sampler	Portable GC	4.5
12/13/2000 2330	0.74	1.096	16.5	361	7.1	Automatic sampler	Portable GC	4.5
12/14/2000 0000	0.72	1.022	17.0	362	7.1	Automatic sampler	Portable GC	4.1
12/14/2000 0030	0.70	0.970	17.0	364	7.1	Automatic sampler	Portable GC	3.8
12/14/2000 0100	0.68	0.912	17.0	366	7.1	Automatic sampler	Portable GC	3.5
12/14/2000 0130	0.66	0.856	17.0	371	7.1	Automatic sampler	Portable GC	3.3
12/14/2000 0200	0.64	0.802	17.0	377	7.1	Automatic sampler	Portable GC	3.1
12/14/2000 0230	0.62	0.751	17.0	382	7.1	Automatic sampler	Portable GC	3.1
12/14/2000 0300	0.61	0.725	17.0	388	7.1	Automatic sampler	Portable GC	3.0
12/14/2000 0700	0.50	0.480	17.0	420	7.1	Dip	Portable GC	2.8
12/14/2000 0730	0.50	0.473	17.0	424	7.2	Dip	Portable GC	2.7

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Discharge (ft ³ /s)	Water-quality characteristic			Volatile organic compound data		
			Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
12/14/2000 0800	0.49	0.460	17.0	427	7.2	Dip	Portable GC	2.7
12/14/2000 0900	0.48	0.440	17.0	434	7.2	Automatic sampler	Portable GC	2.7
12/14/2000 1000	0.46	0.403	17.0	441	7.2	Automatic sampler	Portable GC	2.6
12/14/2000 1100	0.45	0.385	17.0	448	7.2	Automatic sampler	Portable GC	2.6
12/14/2000 1200	0.45	0.378	17.0	453	7.2	Automatic sampler	Portable GC	2.4
12/14/2000 1300	0.43	0.349	17.0	459	7.2	Automatic sampler	Portable GC	2.5
12/14/2000 1400	0.42	0.338	17.0	462	7.2	Automatic sampler	Portable GC	2.4
12/14/2000 1500	0.42	0.332	17.0	468	7.2	Automatic sampler	Portable GC	2.4
12/14/2000 1600	0.41	0.316	17.0	472	7.2	Automatic sampler	Portable GC	2.4
12/14/2000 1700	0.40	0.300	17.0	477	7.2	Automatic sampler	Portable GC	2.3
12/14/2000 1800	0.40	0.300	17.0	482	7.2	Automatic sampler	Portable GC	2.2
12/14/2000 1900	0.39	0.285	17.0	486	7.3	Automatic sampler	Portable GC	2.3
12/14/2000 2000	0.38	0.270	17.0	491	7.3	Automatic sampler	Portable GC	2.2
12/14/2000 2100	0.38	0.270	17.0	497	7.3	Automatic sampler	Portable GC	2.1
12/14/2000 2200	0.37	0.255	17.0	500	7.3	Automatic sampler	Portable GC	2.2
12/14/2000 2300	0.37	0.255	17.0	505	7.3	Automatic sampler	Portable GC	2.2
12/15/2000 0000	0.36	0.241	17.0	508	7.3	Automatic sampler	Portable GC	2.2
12/15/2000 0100	0.36	0.241	17.0	511	7.3	Automatic sampler	Portable GC	2.2
12/15/2000 0200	0.36	0.241	17.0	516	7.3	Automatic sampler	Portable GC	2.2
12/15/2000 0300	0.35	0.227	17.0	518	7.3	Automatic sampler	Portable GC	2.1
12/15/2000 0400	0.35	0.227	17.0	522	7.3	Automatic sampler	Portable GC	2.1
12/15/2000 0500	0.35	0.227	17.0	525	7.3	Automatic sampler	Portable GC	1.9
12/15/2000 0700	0.34	0.214	17.0	530	7.3	Automatic sampler	Portable GC	1.9
12/15/2000 1200	0.32	0.193	17.0	542	7.3	Dip	Portable GC	1.9
12/15/2000 1500	0.32	0.189	17.0	548	7.3	Automatic sampler	Portable GC	1.9
12/15/2000 1800	0.32	0.185	17.0	550	7.4	Automatic sampler	Portable GC	2.0
12/15/2000 2100	0.35	0.227	16.5	539	7.3	Automatic sampler	Portable GC	2.1
12/16/2000 0000	0.77	1.195	16.5	382	7.0	Automatic sampler	Portable GC	1.9
12/16/2000 0900	0.75	1.128	17.0	362	7.0	Automatic sampler	Portable GC	1.7
12/16/2000 1200	0.68	0.912	17.0	381	7.0	Automatic sampler	Portable GC	1.7
12/16/2000 1500	1.49	4.636	15.5	211	6.9	Automatic sampler	Portable GC	0.9
12/18/2000 1400	0.53	0.534	16.5	374	7.1	Dip	Portable GC	1.6
12/18/2000 1510	0.52	0.521	16.5	375	7.1	Automatic sampler	Portable GC	1.7
12/18/2000 1810	0.51	0.494	16.5	383	7.1	Automatic sampler	Portable GC	2.0
12/18/2000 2110	0.49	0.460	16.5	385	7.1	Automatic sampler	Portable GC	2.0
12/19/2000 0010	0.48	0.440	16.5	395	7.2	Automatic sampler	Portable GC	2.0
12/20/2000 0950	0.38	0.270	16.5	431	7.3	Dip	Portable GC	1.7
12/20/2000 1150	0.38	0.270	16.5	425	7.0	Automatic sampler	Portable GC	1.7
12/27/2000 1030	0.21	0.079	16.0	531	7.6	Dip	Portable GC	2.0
01/04/2001 1000	0.13	0.031	15.5	517	7.8	Dip	Portable GC	1.5
01/10/2001 1420	0.12	0.025	15.5	504	7.8	Dip	Portable GC	1.6

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic				Volatile organic compound data		
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
01/11/2001 1700	0.12	0.025	15.0	503	8.2	Automatic sampler	Portable GC	1.5
01/11/2001 1730	0.12	0.025	15.0	504	8.2	Automatic sampler	Portable GC	1.5
01/11/2001 1800	0.12	0.025	15.0	506	8.2	Automatic sampler	Portable GC	1.5
01/11/2001 1900	0.12	0.025	15.5	507	8.2	Automatic sampler	Portable GC	1.6
01/11/2001 2000	0.12	0.025	15.5	510	8.2	Automatic sampler	Portable GC	1.5
01/11/2001 2100	0.13	0.030	15.5	511	8.2	Automatic sampler	Portable GC	1.7
01/11/2001 2200	0.13	0.031	15.5	511	8.2	Automatic sampler	Portable GC	1.8
01/11/2001 2300	0.14	0.035	15.5	512	8.2	Automatic sampler	Portable GC	1.8
01/12/2001 0000	0.15	0.040	15.5	512	8.2	Automatic sampler	Portable GC	1.8
01/12/2001 0100	0.15	0.040	15.5	513	8.2	Automatic sampler	Portable GC	1.8
01/12/2001 0200	0.15	0.040	15.5	513	8.2	Automatic sampler	Portable GC	1.8
01/12/2001 0300	0.15	0.040	15.5	514	8.2	Automatic sampler	Portable GC	1.9
01/12/2001 0430	0.15	0.040	15.5	517	8.2	Automatic sampler	Portable GC	1.8
01/12/2001 0730	0.15	0.040	15.5	521	8.2	Dip	Portable GC	1.8
01/12/2001 0810	0.15	0.040	15.5	522	8.2	Dip	Portable GC	1.8
01/12/2001 0910	0.15	0.040	15.5	526	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 1010	0.15	0.040	15.5	530	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 1110	0.15	0.040	15.5	535	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 1210	0.15	0.040	15.5	540	8.2	Automatic sampler	Portable GC	2.1
01/12/2001 1310	0.15	0.040	15.5	544	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 1409	0.15	0.040	15.5	547	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 1509	0.15	0.040	15.5	549	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 1609	0.15	0.040	15.5	551	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 1709	0.15	0.040	15.5	552	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 1809	0.15	0.040	15.5	552	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 1909	0.15	0.040	15.5	552	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 2110	0.15	0.040	15.5	551	8.2	Automatic sampler	Portable GC	2.0
01/12/2001 2310	0.15	0.040	15.5	548	8.2	Automatic sampler	Portable GC	2.1
01/13/2001 0110	0.15	0.040	15.5	544	8.2	Automatic sampler	Portable GC	2.0
01/13/2001 0310	0.16	0.045	15.5	541	8.2	Automatic sampler	Portable GC	2.2
01/13/2001 0510	0.15	0.040	15.5	538	8.2	Automatic sampler	Portable GC	2.2
01/13/2001 0710	0.15	0.040	15.5	535	8.1	Automatic sampler	Portable GC	2.2
01/17/2001 1630	0.17	0.051	16.0	532	8.2	Automatic sampler	Portable GC	1.7
01/17/2001 1830	0.17	0.051	16.0	532	8.1	Automatic sampler	Portable GC	1.8
01/17/2001 2030	0.17	0.051	16.0	533	8.1	Automatic sampler	Portable GC	1.9
01/17/2001 2230	0.18	0.057	16.0	533	8.1	Automatic sampler	Portable GC	1.9
01/18/2001 0030	0.18	0.057	16.0	533	8.1	Automatic sampler	Portable GC	1.9
01/18/2001 0230	0.18	0.057	16.0	533	8.1	Automatic sampler	Portable GC	2.0
01/18/2001 0429	0.18	0.057	16.0	532	8.1	Automatic sampler	Portable GC	2.0
01/18/2001 0530	0.18	0.060	16.0	531	8.1	Automatic sampler	Portable GC	2.0
01/18/2001 0630	0.19	0.064	16.0	528	8.1	Automatic sampler	Portable GC	2.1

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic			Volatile organic compound data			
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
01/18/2001 0730	0.21	0.079	15.5	513	8.1	Automatic sampler	Portable GC	1.9
01/18/2001 0830	0.25	0.113	15.5	504	8.0	Automatic sampler	Portable GC	2.0
01/18/2001 0930	0.29	0.154	16.0	515	8.0	Automatic sampler	Portable GC	2.1
01/18/2001 1030	0.38	0.269	16.0	558	8.0	Automatic sampler	Portable GC	2.2
01/18/2001 1130	0.50	0.473	16.5	573	7.9	Automatic sampler	Portable GC	2.4
01/18/2001 1210	0.54	0.570	16.5	554	7.9	Dip	Portable GC	2.4
01/18/2001 1310	0.59	0.676	16.5	504	7.7	Automatic sampler	Portable GC	2.8
01/18/2001 1410	0.60	0.708	16.5	462	7.7	Automatic sampler	Portable GC	3.2
01/18/2001 1510	0.61	0.725	16.5	439	7.6	Automatic sampler	Portable GC	3.0
01/18/2001 1610	0.61	0.725	16.5	430	7.6	Automatic sampler	Portable GC	3.1
01/18/2001 1710	0.60	0.700	16.5	425	7.6	Automatic sampler	Portable GC	3.1
01/18/2001 1810	0.60	0.700	16.5	417	7.6	Automatic sampler	Portable GC	2.7
01/18/2001 1910	0.62	0.750	16.0	413	7.6	Automatic sampler	Portable GC	2.6
01/18/2001 2010	0.65	0.838	16.5	417	7.6	Automatic sampler	Portable GC	2.5
01/18/2001 2110	0.71	1.000	16.0	420	7.6	Automatic sampler	Portable GC	2.4
01/18/2001 2210	0.75	1.139	16.0	407	7.6	Automatic sampler	Portable GC	2.3
01/18/2001 2310	0.82	1.366	16.0	393	7.5	Automatic sampler	Portable GC	1.9
01/19/2001 0010	0.88	1.589	16.0	374	7.5	Automatic sampler	Portable GC	2.7
01/19/2001 0110	1.00	2.049	16.0	361	7.5	Automatic sampler	Portable GC	2.1
01/19/2001 0209	1.05	2.284	16.0	331	7.5	Automatic sampler	Portable GC	1.8
01/19/2001 0309	1.16	2.783	16.0	331	7.5	Automatic sampler	Portable GC	1.5
01/19/2001 0409	1.27	3.331	15.5	308	7.5	Automatic sampler	Portable GC	1.3
01/19/2001 0509	1.31	3.567	15.5	297	7.4	Automatic sampler	Portable GC	1.2
01/19/2001 0609	1.34	3.736	15.5	276	7.5	Automatic sampler	Portable GC	1.2
01/19/2001 0709	1.48	4.570	15.5	258	7.5	Automatic sampler	Portable GC	1.1
01/19/2001 0810	1.72	6.267	15.0	259	7.5	Automatic sampler	Portable GC	1.0
01/19/2001 0910	2.12	--	15.0	261	7.5	Automatic sampler	Portable GC	0.98
01/19/2001 1010	2.45	--	15.0	263	7.5	Dip	Portable GC	0.98
01/19/2001 1109	2.75	--	12.0	265	7.6	Automatic sampler	Portable GC	0.84
01/19/2001 1209	2.85	--	11.0	267	7.6	Automatic sampler	Portable GC	0.61
01/19/2001 1309	2.78	--	10.5	269	7.6	Automatic sampler	Portable GC	0.47
01/19/2001 1409	2.60	--	13.5	271	7.5	Automatic sampler	Portable GC	0.66
01/19/2001 1609	1.93	7.965	14.0	274	7.5	Automatic sampler	Portable GC	0.85
01/19/2001 1709	1.46	4.456	14.5	276	7.5	Automatic sampler	Portable GC	0.95
01/19/2001 1809	1.23	3.156	15.0	278	7.5	Automatic sampler	Portable GC	0.98
01/19/2001 1910	1.16	2.785	15.0	294	7.5	Automatic sampler	Portable GC	0.96
01/19/2001 2010	1.12	2.578	15.0	297	7.5	Automatic sampler	Portable GC	0.97
01/19/2001 2110	1.09	2.453	15.0	301	7.5	Automatic sampler	Portable GC	0.94
01/19/2001 2210	1.07	2.360	15.0	305	7.5	Automatic sampler	Portable GC	0.99
01/20/2001 0010	1.01	2.093	15.0	311	7.5	Automatic sampler	Portable GC	0.97
01/20/2001 0210	0.96	1.872	15.0	316	7.5	Automatic sampler	Portable GC	1.1

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic				Volatile organic compound data		
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
01/20/2001 0410	0.90	1.650	15.0	321	7.5	Automatic sampler	Portable GC	1.1
01/20/2001 0610	0.85	1.458	15.0	328	7.5	Automatic sampler	Portable GC	1.1
01/20/2001 0810	0.81	1.322	15.0	335	7.5	Automatic sampler	Portable GC	1.2
01/20/2001 1510	0.70	0.970	15.0	340	7.6	Automatic sampler	Portable GC	1.3
01/21/2001 1310	0.54	0.563	15.5	386	7.6	Automatic sampler	Portable GC	1.5
01/22/2001 1300	0.48	0.440	15.5	399	7.6	Dip	Portable GC	1.4
01/23/2001 1300	0.43	0.349	15.5	418	7.6	Automatic sampler	Portable GC	1.5
01/24/2001 1300	0.39	0.285	15.5	438	7.7	Automatic sampler	Portable GC	1.5
01/25/2001 1300	0.36	0.241	15.5	458	7.7	Automatic sampler	Portable GC	1.5
01/26/2001 0930	0.34	0.210	15.5	474	7.8	Dip	Portable GC	1.5
01/30/2001 0720	0.56	0.607	15.5	394	7.6	Dip	Portable GC	1.8
01/30/2001 0820	0.56	0.607	15.5	394	7.6	Automatic sampler	Portable GC	1.7
01/30/2001 0919	0.55	0.585	15.5	394	7.6	Automatic sampler	Portable GC	1.7
01/30/2001 1019	0.55	0.585	15.5	393	7.6	Automatic sampler	Portable GC	1.6
01/30/2001 1119	0.55	0.585	15.5	394	7.6	Automatic sampler	Portable GC	1.5
01/30/2001 1219	0.54	0.563	15.5	394	7.6	Automatic sampler	Portable GC	1.3
01/30/2001 1319	0.54	0.563	15.5	395	7.6	Automatic sampler	Portable GC	1.4
01/30/2001 1419	0.53	0.542	15.5	396	7.6	Automatic sampler	Portable GC	1.6
01/30/2001 1720	0.52	0.521	15.5	400	7.6	Automatic sampler	Portable GC	1.5
01/30/2001 2020	0.51	0.500	15.5	403	7.6	Automatic sampler	Portable GC	1.5
01/30/2001 2320	0.50	0.480	15.5	407	7.6	Automatic sampler	Portable GC	1.5
01/31/2001 0520	0.47	0.421	15.5	415	7.6	Automatic sampler	Portable GC	1.4
01/31/2001 1300	0.45	0.384	15.5	417	7.4	Dip	Portable GC	1.3
02/07/2001 1040	0.28	0.139	15.5	491	7.7	Dip	Portable GC	1.6
02/09/2001 2130	0.28	0.143	15.5	488	7.7	Automatic sampler	Portable GC	2.1
02/09/2001 2200	0.29	0.150	15.5	489	7.7	Automatic sampler	Portable GC	2.2
02/09/2001 2229	0.29	0.154	15.5	492	7.7	Automatic sampler	Portable GC	2.1
02/09/2001 2300	0.29	0.154	15.5	493	7.7	Automatic sampler	Portable GC	2.3
02/09/2001 2330	0.29	0.154	15.5	495	7.7	Automatic sampler	Portable GC	2.7
02/10/2001 0000	0.29	0.154	15.5	496	7.7	Automatic sampler	Portable GC	2.3
02/10/2001 0030	0.30	0.165	15.5	496	7.7	Automatic sampler	Portable GC	2.8
02/10/2001 0130	0.30	0.165	15.5	496	7.7	Automatic sampler	Portable GC	2.7
02/10/2001 0230	0.30	0.165	15.5	497	7.7	Automatic sampler	Portable GC	2.7
02/10/2001 0330	0.30	0.165	15.5	500	7.7	Automatic sampler	Portable GC	2.6
02/10/2001 0430	0.30	0.165	15.5	501	7.7	Automatic sampler	Portable GC	2.5
02/10/2001 0530	0.30	0.165	15.5	502	7.7	Automatic sampler	Portable GC	2.3
02/10/2001 0630	0.30	0.165	15.5	502	7.7	Automatic sampler	Portable GC	2.3
02/10/2001 0730	0.30	0.165	15.5	501	7.7	Automatic sampler	Portable GC	2.3
02/10/2001 0830	0.30	0.165	15.5	497	7.7	Automatic sampler	Portable GC	2.3
02/10/2001 1000	0.30	0.165	15.5	493	7.7	Dip	Portable GC	2.5
02/10/2001 1300	0.31	0.177	15.5	488	7.7	Automatic sampler	Portable GC	2.2

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic			Volatile organic compound data			
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
02/10/2001 1700	0.31	0.177	15.5	484	7.7	Automatic sampler	Portable GC	1.9
02/11/2001 0900	0.31	0.177	15.5	479	7.7	Automatic sampler	Portable GC	1.7
02/12/2001 0100	0.31	0.177	15.5	475	7.7	Automatic sampler	Portable GC	1.7
02/12/2001 0900	0.33	0.201	15.5	478	7.7	Automatic sampler	Portable GC	1.5
02/12/2001 1030	0.33	0.201	15.5	477	7.7	Dip	Portable GC	1.5
02/12/2001 2240	0.34	0.219	15.5	468	7.6	Automatic sampler	Portable GC	1.6
02/13/2001 1430	0.37	0.255	15.5	460	7.6	Automatic sampler	Portable GC	1.6
02/13/2001 1630	0.42	0.332	15.0	443	7.6	Automatic sampler	Portable GC	1.6
02/13/2001 1830	1.15	2.728	15.0	359	7.4	Automatic sampler	Portable GC	1.5
02/13/2001 2030	1.40	4.084	14.5	259	7.3	Automatic sampler	Portable GC	1.0
02/13/2001 2230	1.41	4.143	14.5	267	7.3	Automatic sampler	Portable GC	1.0
02/14/2001 0030	1.41	4.145	14.5	264	7.3	Automatic sampler	Portable GC	0.86
02/14/2001 0230	1.34	3.736	14.5	265	7.3	Automatic sampler	Portable GC	1.0
02/14/2001 0430	1.24	3.191	14.5	272	7.3	Automatic sampler	Portable GC	0.98
02/14/2001 0630	1.15	2.737	14.5	282	7.3	Automatic sampler	Portable GC	1.0
02/14/2001 0830	1.07	2.360	14.5	268	7.3	Automatic sampler	Portable GC	0.98
02/14/2001 0920	1.04	2.224	14.5	298	7.3	Dip	Portable GC	1.0
02/14/2001 1000	1.02	2.136	14.5	301	7.3	Dip	Portable GC	0.97
02/14/2001 1200	0.97	1.925	14.5	305	7.3	Automatic sampler	Portable GC	0.95
02/14/2001 1400	0.91	1.701	14.5	314	7.3	Automatic sampler	Portable GC	1.0
02/14/2001 1600	0.87	1.541	14.5	320	7.3	Automatic sampler	Portable GC	1.0
02/14/2001 1800	0.82	1.378	14.5	325	7.3	Automatic sampler	Portable GC	1.1
02/14/2001 2000	0.79	1.265	14.5	330	7.3	Automatic sampler	Portable GC	1.1
02/14/2001 2200	0.78	1.230	14.5	334	7.3	Automatic sampler	Portable GC	1.3
02/15/2001 0000	1.10	2.484	14.5	288	7.3	Automatic sampler	Portable GC	0.88
02/15/2001 0200	1.21	3.035	14.0	254	7.3	Automatic sampler	Portable GC	0.83
02/15/2001 0400	1.34	3.736	14.0	256	7.3	Automatic sampler	Portable GC	0.93
02/15/2001 0600	1.32	3.623	14.0	257	7.3	Automatic sampler	Portable GC	0.84
02/15/2001 0800	1.25	3.243	14.0	260	7.3	Automatic sampler	Portable GC	0.83
02/15/2001 1000	1.20	2.984	14.0	262	7.3	Automatic sampler	Portable GC	0.88
02/15/2001 1200	1.14	2.705	14.0	267	7.2	Automatic sampler	Portable GC	0.92
02/15/2001 1400	1.10	2.485	14.0	273	7.2	Automatic sampler	Portable GC	0.89
02/15/2001 1600	1.46	4.427	14.0	230	7.3	Automatic sampler	Portable GC	0.73
02/15/2001 1800	1.81	6.978	14.0	195	7.4	Automatic sampler	Portable GC	0.59
02/15/2001 2000	4.22	--	14.0	196	7.3	Automatic sampler	Portable GC	0.85
02/15/2001 2200	4.72	--	13.5	211	7.3	Automatic sampler	Portable GC	0.78
02/16/2001 0000	2.89	--	13.5	229	7.4	Automatic sampler	Portable GC	0.97
02/16/2001 0200	1.35	3.812	14.0	246	7.4	Automatic sampler	Portable GC	0.89
02/16/2001 0400	1.25	3.243	14.0	254	7.4	Automatic sampler	Portable GC	1.0
02/16/2001 0600	1.23	3.121	14.0	255	7.4	Automatic sampler	Portable GC	0.91
02/16/2001 0800	1.26	3.278	14.0	254	7.4	Automatic sampler	Portable GC	0.82

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic				Volatile organic compound data		
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
02/16/2001 0920	1.37	3.907	13.5	247	7.4	Dip	Portable GC	0.72
02/16/2001 1100	1.49	4.636	13.5	222	7.4	Dip	Portable GC	0.63
02/16/2001 1300	2.00	8.604	13.5	207	7.4	Automatic sampler	Portable GC	0.60
02/16/2001 1459	3.55	--	13.0	184	7.4	Automatic sampler	Portable GC	0.52
02/16/2001 1659	5.79	--	12.5	171	7.4	Automatic sampler	Portable GC	0.46
02/16/2001 1859	7.85	--	11.0	150	7.6	Automatic sampler	Portable GC	0.32
02/16/2001 2000	9.12	--	10.5	134	7.6	Automatic sampler	Portable GC	0.11
02/16/2001 2059	9.83	--	10.0	130	7.6	Automatic sampler	Portable GC	0.077
02/16/2001 2200	10.08	--	10.0	134	7.6	Automatic sampler	Portable GC	0.080
02/16/2001 2300	9.88	--	10.0	138	7.6	Automatic sampler	Portable GC	0.080
02/17/2001 0000	9.30	--	10.0	147	7.6	Automatic sampler	Portable GC	0.073
02/17/2001 0100	8.67	--	10.0	162	7.6	Automatic sampler	Portable GC	0.099
02/17/2001 0200	7.68	--	10.5	180	7.6	Automatic sampler	Portable GC	0.15
02/17/2001 0300	6.76	--	11.0	191	7.5	Automatic sampler	Portable GC	0.38
02/17/2001 0400	5.52	--	11.5	202	7.5	Automatic sampler	Portable GC	0.61
02/17/2001 0900	1.51	4.767	12.0	209	7.4	Automatic sampler	Portable GC	0.83
02/17/2001 1010	1.45	4.387	11.5	207	7.4	Dip	Portable GC	0.86
02/17/2001 1310	1.40	4.084	11.5	206	7.4	Automatic sampler	Portable GC	0.79
02/17/2001 1610	1.35	3.812	11.5	207	7.4	Automatic sampler	Portable GC	0.77
02/18/2001 1010	0.92	1.714	13.5	272	7.4	Automatic sampler	Portable GC	0.65
02/18/2001 1310	0.87	1.541	13.5	274	7.4	Automatic sampler	Portable GC	0.93
02/18/2001 1610	0.82	1.356	13.5	276	7.4	Automatic sampler	Portable GC	0.99
02/19/2001 1010	0.57	0.630	14.0	302	7.5	Automatic sampler	Portable GC	1.0
02/20/2001 0810	0.51	0.500	13.5	325	7.5	Dip	Portable GC	1.3
02/21/2001 1100	0.45	0.384	14.0	350	7.4	Dip	Portable GC	1.4
02/22/2001 0150	0.53	0.541	14.0	359	7.5	Automatic sampler	Portable GC	1.6
02/22/2001 0250	0.55	0.585	14.0	360	7.4	Automatic sampler	Portable GC	1.5
02/22/2001 0320	0.55	0.585	14.0	337	7.4	Automatic sampler	Portable GC	1.6
02/22/2001 0350	0.56	0.607	14.0	326	7.4	Automatic sampler	Portable GC	1.8
02/22/2001 0420	0.56	0.607	14.0	312	7.4	Automatic sampler	Portable GC	1.7
02/22/2001 0450	0.58	0.653	14.0	315	7.4	Automatic sampler	Portable GC	1.6
02/22/2001 0520	0.59	0.668	14.0	329	7.4	Automatic sampler	Portable GC	1.5
02/22/2001 0549	0.59	0.676	14.0	333	7.4	Automatic sampler	Portable GC	1.4
02/22/2001 0619	0.60	0.700	14.0	309	7.4	Automatic sampler	Portable GC	1.2
02/22/2001 0649	0.61	0.725	14.0	333	7.4	Automatic sampler	Portable GC	1.1
02/22/2001 0719	0.61	0.725	14.0	328	7.4	Automatic sampler	Portable GC	1.2
02/22/2001 0749	0.62	0.750	14.0	324	7.4	Automatic sampler	Portable GC	1.3
02/22/2001 0819	0.61	0.725	14.0	334	7.4	Automatic sampler	Portable GC	1.2
02/22/2001 0849	0.62	0.750	14.0	329	7.4	Automatic sampler	Portable GC	1.3
02/22/2001 0919	0.62	0.742	14.0	326	7.4	Automatic sampler	Portable GC	1.3
02/22/2001 0949	0.62	0.750	14.0	321	7.4	Automatic sampler	Portable GC	1.6

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic			Volatile organic compound data			
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
02/22/2001 1019	0.61	0.725	14.0	323	7.4	Automatic sampler	Portable GC	1.5
02/22/2001 1049	0.61	0.725	14.0	323	7.4	Automatic sampler	Portable GC	1.6
02/22/2001 1119	0.61	0.725	14.0	324	7.4	Automatic sampler	Portable GC	1.6
02/22/2001 1149	0.60	0.700	14.0	321	7.4	Automatic sampler	Portable GC	1.4
02/22/2001 1219	0.60	0.700	14.0	322	7.4	Dip	Portable GC	1.1
02/22/2001 1250	0.60	0.700	14.0	320	7.4	Automatic sampler	Portable GC	1.2
02/22/2001 1320	0.60	0.700	14.0	322	7.4	Automatic sampler	Portable GC	1.2
02/22/2001 1410	0.60	0.692	14.0	324	7.4	Automatic sampler	Portable GC	1.4
02/22/2001 1510	0.59	0.676	14.0	325	7.4	Automatic sampler	Portable GC	1.3
02/22/2001 1710	0.59	0.676	14.0	328	7.4	Automatic sampler	Portable GC	1.3
02/22/2001 1910	0.58	0.653	14.0	330	7.4	Automatic sampler	Portable GC	1.2
02/22/2001 2109	0.57	0.630	14.0	332	7.4	Automatic sampler	Portable GC	1.3
02/22/2001 2309	0.57	0.630	14.0	332	7.4	Automatic sampler	Portable GC	1.3
02/23/2001 0309	0.55	0.585	14.0	333	7.5	Automatic sampler	Portable GC	1.2
02/23/2001 0709	0.54	0.563	14.0	339	7.5	Automatic sampler	Portable GC	1.2
02/23/2001 0909	0.54	0.563	14.0	342	7.5	Automatic sampler	Portable GC	1.1
02/23/2001 1109	0.53	0.542	14.0	342	7.5	Automatic sampler	Portable GC	1.2
02/23/2001 1410	0.52	0.521	14.0	344	7.5	Dip	Portable GC	1.2
02/25/2001 0120	0.45	0.384	14.0	367	7.4	Automatic sampler	Portable GC	1.4
02/25/2001 0220	0.64	0.801	14.0	355	7.4	Automatic sampler	Portable GC	1.3
02/25/2001 0319	0.84	1.435	14.0	226	7.3	Automatic sampler	Portable GC	1.6
02/25/2001 0419	0.92	1.726	14.0	232	7.3	Automatic sampler	Portable GC	1.5
02/25/2001 0519	0.97	1.939	14.0	232	7.3	Automatic sampler	Portable GC	0.95
02/25/2001 0619	0.96	1.885	14.0	217	7.3	Automatic sampler	Portable GC	0.70
02/25/2001 0719	0.92	1.726	14.0	227	7.3	Automatic sampler	Portable GC	0.74
02/25/2001 0819	0.90	1.650	14.0	241	7.3	Automatic sampler	Portable GC	0.82
02/25/2001 0919	0.85	1.470	14.0	256	7.3	Automatic sampler	Portable GC	0.93
02/25/2001 1019	0.82	1.367	14.0	267	7.3	Automatic sampler	Portable GC	0.95
02/25/2001 1119	0.80	1.300	14.0	274	7.3	Automatic sampler	Portable GC	0.94
02/25/2001 1219	0.79	1.265	14.0	277	7.3	Automatic sampler	Portable GC	0.98
02/25/2001 1319	0.78	1.230	14.0	285	7.3	Automatic sampler	Portable GC	0.93
02/25/2001 1419	0.76	1.162	14.0	286	7.3	Dip	Portable GC	0.96
02/25/2001 1440	0.75	1.128	14.0	285	7.3	Dip	Portable GC	0.96
02/25/2001 1540	0.74	1.096	14.0	283	7.3	Automatic sampler	Portable GC	0.93
02/25/2001 1740	0.71	1.001	14.0	300	7.3	Automatic sampler	Portable GC	0.90
02/25/2001 2140	0.65	0.829	14.0	315	7.4	Automatic sampler	Portable GC	1.0
02/26/2001 0140	0.62	0.750	14.0	325	7.4	Automatic sampler	Portable GC	0.94
02/26/2001 0540	0.60	0.700	14.0	330	7.4	Automatic sampler	Portable GC	0.99
02/26/2001 0940	0.58	0.653	14.0	334	7.4	Automatic sampler	Portable GC	1.0
02/26/2001 1340	0.56	0.607	14.0	339	7.4	Dip	Portable GC	1.1
03/01/2001 1030	0.40	0.300	14.0	376	7.7	Dip	Portable GC	1.5

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic				Volatile organic compound data		
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
03/01/2001 1320	0.40	0.300	14.0	382	7.7	Automatic sampler	Portable GC	1.6
03/01/2001 1420	0.40	0.300	14.0	383	7.6	Automatic sampler	Portable GC	1.4
03/07/2001 1000	0.37	0.255	14.5	400	7.7	Automatic sampler	Portable GC	1.4
03/12/2001 1050	0.28	0.143	14.5	427	7.8	Automatic sampler	Portable GC	1.9
03/12/2001 1120	0.28	0.143	14.5	427	7.8	Automatic sampler	Portable GC	1.8
03/12/2001 1149	0.28	0.143	14.5	427	7.7	Automatic sampler	Portable GC	1.6
03/12/2001 1219	0.28	0.143	14.5	427	7.7	Automatic sampler	Portable GC	1.5
03/12/2001 1249	0.28	0.143	14.5	427	7.7	Automatic sampler	Portable GC	1.8
03/12/2001 1319	0.28	0.143	14.5	427	7.7	Automatic sampler	Portable GC	1.9
03/12/2001 1349	0.28	0.143	14.5	427	7.7	Automatic sampler	Portable GC	1.9
03/12/2001 1419	0.28	0.143	14.5	427	7.7	Automatic sampler	Portable GC	1.9
03/12/2001 1500	0.28	0.143	14.5	427	7.7	Dip	Portable GC	1.8
03/12/2001 1600	0.28	0.147	14.5	427	7.7	Automatic sampler	Portable GC	1.6
03/12/2001 1659	0.29	0.154	14.5	427	7.7	Automatic sampler	Portable GC	1.6
03/12/2001 1759	0.28	0.143	14.5	427	7.7	Automatic sampler	Portable GC	2.0
03/12/2001 1859	0.28	0.143	14.5	428	7.7	Automatic sampler	Portable GC	1.8
03/12/2001 2100	0.28	0.143	14.5	428	7.7	Automatic sampler	Portable GC	1.9
03/12/2001 2300	0.28	0.143	14.5	429	7.7	Automatic sampler	Portable GC	1.7
03/13/2001 0100	0.28	0.143	14.5	429	7.7	Automatic sampler	Portable GC	1.6
03/13/2001 0400	0.28	0.143	14.5	431	7.7	Automatic sampler	Portable GC	1.7
03/13/2001 0700	0.28	0.143	14.5	432	7.7	Automatic sampler	Portable GC	1.6
03/13/2001 0959	0.27	0.133	14.5	432	7.7	Automatic sampler	Portable GC	1.8
03/13/2001 1330	0.27	0.133	14.5	432	7.7	Dip	Portable GC	1.7
03/15/2001 0500	0.25	0.113	14.5	433	7.7	Automatic sampler	Portable GC	1.7
03/15/2001 0600	0.26	0.123	14.5	433	7.7	Automatic sampler	Portable GC	1.9
03/15/2001 0700	0.26	0.123	14.5	431	7.7	Automatic sampler	Portable GC	1.9
03/15/2001 0800	0.27	0.133	14.5	431	7.7	Automatic sampler	Portable GC	1.9
03/15/2001 0900	0.29	0.154	14.5	431	7.7	Automatic sampler	Portable GC	1.9
03/15/2001 1000	0.29	0.154	14.5	432	7.7	Automatic sampler	Portable GC	1.8
03/15/2001 1300	0.30	0.165	14.5	436	7.7	Dip	Portable GC	2.2
03/19/2001 1410	0.30	0.161	14.5	429	7.8	Dip	Portable GC	1.6
03/20/2001 0120	0.29	0.154	14.5	432	7.7	Automatic sampler	Portable GC	1.3
03/20/2001 0150	0.29	0.154	14.5	432	7.7	Automatic sampler	Portable GC	1.5
03/20/2001 0220	0.29	0.154	14.5	431	7.7	Automatic sampler	Portable GC	1.5
03/20/2001 0250	0.29	0.154	14.5	430	7.7	Automatic sampler	Portable GC	1.4
03/20/2001 0320	0.29	0.154	14.5	430	7.7	Automatic sampler	Portable GC	1.5
03/20/2001 0350	0.31	0.177	14.0	428	7.7	Automatic sampler	Portable GC	1.5
03/20/2001 0420	0.31	0.177	14.0	428	7.7	Automatic sampler	Portable GC	1.4
03/20/2001 0449	0.32	0.189	14.0	427	7.7	Automatic sampler	Portable GC	1.5
03/20/2001 0519	0.34	0.214	14.5	426	7.7	Automatic sampler	Portable GC	1.4
03/20/2001 0550	0.36	0.241	14.5	427	7.7	Automatic sampler	Portable GC	1.5

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Discharge (ft ³ /s)	Water-quality characteristic			Volatile organic compound data		
			Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
03/20/2001 0619	0.38	0.270	14.5	428	7.6	Automatic sampler	Portable GC	1.6
03/20/2001 0649	0.42	0.338	14.5	429	7.6	Automatic sampler	Portable GC	1.7
03/20/2001 0719	0.47	0.428	14.5	426	7.6	Automatic sampler	Portable GC	1.7
03/20/2001 0750	0.51	0.500	14.5	426	7.5	Automatic sampler	Portable GC	1.7
03/20/2001 0820	0.54	0.563	14.5	424	7.5	Automatic sampler	Portable GC	1.7
03/20/2001 0849	0.59	0.668	14.5	415	7.5	Automatic sampler	Portable GC	1.8
03/20/2001 0919	0.69	0.931	14.5	405	7.4	Dip	Portable GC	1.6
03/20/2001 1000	0.97	1.914	14.0	340	7.3	Dip	Portable GC	1.3
03/20/2001 1100	1.29	3.456	12.0	225	7.3	Automatic sampler	Portable GC	1.6
03/20/2001 1200	1.47	4.510	12.5	194	7.3	Automatic sampler	Portable GC	0.75
03/20/2001 1300	1.66	5.814	12.5	199	7.3	Automatic sampler	Portable GC	0.62
03/20/2001 1400	2.73	--	12.0	198	7.3	Automatic sampler	Portable GC	0.65
03/20/2001 1500	3.44	--	11.0	189	7.3	Automatic sampler	Portable GC	0.57
03/20/2001 1600	3.93	--	9.5	181	7.4	Automatic sampler	Portable GC	0.41
03/20/2001 1700	3.92	--	9.5	177	7.4	Automatic sampler	Portable GC	0.33
03/20/2001 1800	3.32	--	9.5	180	7.4	Automatic sampler	Portable GC	0.34
03/20/2001 1900	2.47	--	10.5	202	7.3	Automatic sampler	Portable GC	0.52
03/20/2001 1959	1.47	4.521	12.5	243	7.2	Automatic sampler	Portable GC	0.74
03/20/2001 2059	1.20	2.985	13.5	257	7.2	Automatic sampler	Portable GC	0.89
03/20/2001 2159	1.13	2.657	13.5	262	7.2	Automatic sampler	Portable GC	0.91
03/20/2001 2259	1.10	2.500	13.5	271	7.2	Automatic sampler	Portable GC	0.90
03/20/2001 2359	1.06	2.314	13.5	276	7.2	Automatic sampler	Portable GC	0.86
03/21/2001 0059	1.04	2.224	13.5	280	7.2	Automatic sampler	Portable GC	0.86
03/21/2001 0300	0.98	1.967	13.5	283	7.2	Automatic sampler	Portable GC	0.84
03/21/2001 0500	0.93	1.766	13.5	288	7.2	Automatic sampler	Portable GC	0.82
03/21/2001 0700	0.88	1.577	13.5	292	7.2	Automatic sampler	Portable GC	0.86
03/21/2001 1000	0.82	1.378	13.5	296	7.2	Dip	Portable GC	0.92
03/21/2001 1400	0.77	1.195	13.5	301	7.2	Automatic sampler	Portable GC	0.89
03/21/2001 2000	0.70	0.970	13.5	307	7.2	Automatic sampler	Portable GC	0.97
03/22/2001 0200	0.64	0.802	13.5	315	7.3	Automatic sampler	Portable GC	1.0
03/22/2001 1000	0.59	0.676	13.5	332	7.3	Automatic sampler	Portable GC	1.1
03/22/2001 1759	0.56	0.607	13.5	341	7.2	Automatic sampler	Portable GC	1.1
03/23/2001 0600	0.52	0.528	13.5	347	7.3	Automatic sampler	Portable GC	1.1
03/23/2001 1200	0.51	0.500	13.5	346	7.3	Dip	Portable GC	1.2
03/28/2001 1410	0.34	0.210	14.0	413	7.6	Dip	Portable GC	1.7
04/04/2001 0010	0.23	0.095	14.0	402	7.6	Automatic sampler	Portable GC	2.3
04/04/2001 1340	0.22	0.087	14.0	435	7.6	Dip	Portable GC	2.6
04/04/2001 1410	0.22	0.087	14.0	435	7.6	Automatic sampler	Portable GC	2.5
04/04/2001 1509	0.22	0.087	14.0	435	7.7	Automatic sampler	Portable GC	2.4
04/04/2001 1709	0.24	0.107	14.0	435	7.6	Automatic sampler	Portable GC	2.6
04/04/2001 2010	0.26	0.123	14.0	433	7.6	Automatic sampler	Portable GC	2.4

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic				Volatile organic compound data		
		Discharge (ft ³ /s)	Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
04/11/2001 1330	0.22	0.087	14.0	445	7.6	Dip	Portable GC	2.5
04/12/2001 0810	0.22	0.087	14.0	449	7.7	Automatic sampler	Portable GC	2.6
04/12/2001 1400	0.23	0.095	14.0	447	7.6	Dip	Portable GC	2.6
04/12/2001 2000	0.22	0.087	14.0	449	7.6	Automatic sampler	Portable GC	2.6
04/13/2001 0200	0.24	0.104	14.0	446	7.6	Automatic sampler	Portable GC	2.7
04/13/2001 0300	0.27	0.129	14.0	444	7.5	Automatic sampler	Portable GC	2.6
04/13/2001 0400	0.31	0.177	14.0	443	7.5	Automatic sampler	Portable GC	2.5
04/13/2001 0500	0.57	0.630	14.0	449	7.5	Automatic sampler	Portable GC	2.6
04/13/2001 0559	0.83	1.400	14.0	335	7.3	Automatic sampler	Portable GC	2.5
04/13/2001 0659	0.90	1.663	14.0	263	7.3	Automatic sampler	Portable GC	1.7
04/13/2001 0759	0.94	1.804	14.0	294	7.2	Automatic sampler	Portable GC	1.8
04/13/2001 0859	1.02	2.150	14.0	325	7.3	Automatic sampler	Portable GC	2.1
04/13/2001 0959	1.04	2.225	14.0	319	7.3	Automatic sampler	Portable GC	1.7
04/13/2001 1059	0.91	1.676	14.0	305	7.2	Automatic sampler	Portable GC	1.1
04/13/2001 1159	0.86	1.505	14.0	315	7.2	Dip	Portable GC	1.1
04/13/2001 1259	0.82	1.378	14.0	319	7.3	Automatic sampler	Portable GC	1.1
04/13/2001 1359	0.80	1.300	14.0	323	7.3	Automatic sampler	Portable GC	1.1
04/13/2001 1459	0.77	1.207	14.0	327	7.3	Automatic sampler	Portable GC	1.0
04/13/2001 1559	0.76	1.162	14.0	325	7.3	Automatic sampler	Portable GC	1.0
04/13/2001 1659	0.73	1.064	14.0	333	7.3	Automatic sampler	Portable GC	1.0
04/13/2001 1759	0.71	1.001	14.0	337	7.3	Automatic sampler	Portable GC	1.1
04/13/2001 1859	0.69	0.941	14.0	333	7.3	Automatic sampler	Portable GC	1.0
04/13/2001 2000	0.67	0.884	14.0	336	7.3	Automatic sampler	Portable GC	1.0
04/13/2001 2100	0.66	0.856	14.0	349	7.3	Automatic sampler	Portable GC	1.1
04/13/2001 2200	0.65	0.829	14.0	351	7.3	Automatic sampler	Portable GC	1.1
04/13/2001 2300	0.63	0.776	14.0	355	7.3	Automatic sampler	Portable GC	1.1
04/14/2001 0300	0.60	0.700	14.0	366	7.3	Automatic sampler	Portable GC	1.1
04/14/2001 0700	0.57	0.630	14.0	373	7.3	Automatic sampler	Portable GC	1.0
04/14/2001 1200	0.54	0.563	14.0	381	7.3	Dip	Portable GC	1.1
04/14/2001 1800	0.52	0.521	14.0	386	7.3	Automatic sampler	Portable GC	1.0
04/15/2001 0000	0.50	0.480	14.0	392	7.3	Automatic sampler	Portable GC	1.2
04/15/2001 0600	0.49	0.460	14.0	397	7.3	Automatic sampler	Portable GC	1.2
04/15/2001 0800	0.48	0.440	14.0	394	7.3	Automatic sampler	Portable GC	1.3
04/15/2001 1000	0.60	0.700	14.0	397	7.3	Automatic sampler	Portable GC	1.4
04/15/2001 1200	0.63	0.776	14.0	350	7.3	Automatic sampler	Portable GC	1.1
04/15/2001 1400	0.62	0.750	14.0	355	7.3	Automatic sampler	Portable GC	1.2
04/15/2001 1600	0.62	0.750	14.0	355	7.3	Automatic sampler	Portable GC	1.2
04/15/2001 1800	0.60	0.700	14.0	360	7.3	Automatic sampler	Portable GC	1.3
04/15/2001 2000	0.60	0.700	14.0	347	7.3	Automatic sampler	Portable GC	1.3
04/15/2001 2200	0.58	0.653	14.0	366	7.3	Automatic sampler	Portable GC	1.3
04/16/2001 0000	0.57	0.630	14.0	369	7.3	Automatic sampler	Portable GC	1.3

Table 20. Chloroform data collected at Wilson Spring—Continued

Date and time	Gage height (feet above datum)	Discharge (ft ³ /s)	Water-quality characteristic			Volatile organic compound data		
			Temperature (°C)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Chloroform (mg/L)
04/16/2001 0200	0.56	0.607	14.0	372	7.3	Automatic sampler	Portable GC	1.1
04/16/2001 0400	0.56	0.607	14.0	373	7.3	Automatic sampler	Portable GC	1.2
04/16/2001 0600	0.55	0.585	14.0	376	7.4	Automatic sampler	Portable GC	1.3
04/16/2001 0800	0.54	0.563	14.0	368	7.4	Automatic sampler	Portable GC	1.2
04/16/2001 1000	0.53	0.542	14.0	379	7.4	Automatic sampler	Portable GC	1.3
04/16/2001 1310	0.52	0.521	14.0	381	7.3	Dip	Portable GC	1.2
04/16/2001 1710	0.51	0.500	14.0	384	7.3	Automatic sampler	Portable GC	1.2
04/16/2001 2310	0.49	0.460	14.0	390	7.3	Automatic sampler	Portable GC	1.2
04/17/2001 0510	0.47	0.421	14.0	394	7.4	Automatic sampler	Portable GC	1.2
04/17/2001 1109	0.45	0.390	14.0	398	7.5	Automatic sampler	Portable GC	1.1
04/17/2001 1709	0.44	0.367	14.0	402	7.5	Automatic sampler	Portable GC	1.3
04/17/2001 1910	0.44	0.367	14.0	404	7.5	Automatic sampler	Portable GC	1.2
04/17/2001 2110	0.43	0.355	14.0	405	7.5	Automatic sampler	Portable GC	1.1
04/17/2001 2310	0.43	0.349	14.0	405	7.5	Automatic sampler	Portable GC	1.1
04/18/2001 0110	0.43	0.349	14.0	405	7.5	Automatic sampler	Portable GC	1.1
04/18/2001 0310	0.42	0.332	14.0	403	7.5	Automatic sampler	Portable GC	1.0
04/18/2001 0510	0.42	0.332	14.0	410	7.5	Automatic sampler	Portable GC	1.1
04/18/2001 0710	0.41	0.321	14.0	411	7.6	Automatic sampler	Portable GC	1.1
04/18/2001 1100	0.40	0.300	14.0	397	7.5	Dip	Portable GC	1.1
04/22/2001 0220	0.30	0.165	14.0	436	7.5	Automatic sampler	Portable GC	1.5
04/22/2001 0450	0.30	0.165	14.0	436	7.5	Automatic sampler	Portable GC	1.4
04/22/2001 0750	0.29	0.154	14.0	437	7.5	Automatic sampler	Portable GC	1.5
04/22/2001 1050	0.29	0.154	14.0	438	7.5	Automatic sampler	Portable GC	1.6
04/22/2001 1349	0.29	0.154	14.0	438	7.5	Automatic sampler	Portable GC	1.4
04/24/2001 1240	0.25	0.113	14.0	442	7.5	Dip	Portable GC	1.8
04/25/2001 1100	0.23	0.095	14.0	443	7.7	Dip	Portable GC	1.7
05/02/2001 0850	0.16	0.045	14.0	445	7.7	Dip	Portable GC	2.7

Table 21. Volatile organic compound data collected at Cascade Spring

[ft³/s, cubic feet per second; °C, degrees Celsius; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; GC, gas chromatograph; --, no data; <, less than; NWQL, U.S. Geological Survey National Water Quality Laboratory; auto, automatic sampler; Discharge values do not include water captured by Wartrace Water System]

Date and time	Water-quality characteristic					Volatile organic compound data					
	Discharge (ft ³ /s)	Temperature (°C)	Dissolved oxygen (mg/L)	Specific conductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Tetra-chloroethylene (µg/L)	Tri-chloroethylene (µg/L)	cis-1,2-Dichloroethylene (µg/L)	Chloroform (µg/L)
03/23/2000 0945	0.88	14.5	7.7	83	6.1	Dip	Portable GC	0.35	<0.25	--	--
03/23/2000 1110	0.88	--	--	--	--	Dip	NWQL	0.40	0.18	1.2	--
04/10/2000 1044	0.70	14.5	7.7	87	6.2	Dip	Portable GC	0.26	<0.25	0.48	--
05/16/2000 1130	0.61	15.0	7.3	91	6.0	Dip	NWQL	0.36	0.19	0.88	<0.20
05/17/2000 0730	0.63	15.0	7.1	92	6.0	Dip	NWQL	0.36	0.20	0.89	<0.20
05/22/2000 1115	0.57	15.0	7.1	91	6.0	Dip	NWQL	0.47	0.24	0.93	0.21
06/20/2000 0929	0.70	15.0	6.8	90	6.0	Dip	Portable GC	0.38	<0.25	1.3	--
06/20/2000 1030	0.68	15.0	6.8	90	5.9	Dip	Portable GC	0.38	<0.25	1.2	--
06/20/2000 1130	0.68	15.0	6.8	90	5.9	Dip	NWQL	0.45	0.25	1.3	--
06/20/2000 1230	0.66	15.0	6.8	90	5.9	Dip	Portable GC	0.37	<0.25	1.2	--
06/20/2000 1330	0.64	15.0	6.8	90	5.9	Dip	Portable GC	0.42	0.54	1.4	--
06/20/2000 1430	0.64	15.0	6.8	90	5.9	Dip	Portable GC	0.45	0.30	1.2	--
06/20/2000 1530	0.63	15.0	6.8	91	5.9	Dip	Portable GC	0.45	0.29	1.2	--
06/21/2000 0730	0.63	15.0	6.8	90	5.9	Dip	Portable GC	0.50	0.40	1.3	--
07/05/2000 1500	0.61	15.0	7.0	89	5.9	Dip	Portable GC	0.63	0.20	1.4	--
07/21/2000 1045	0.64	15.0	7.0	92	5.9	Dip	Portable GC	0.51	<0.25	1.7	--
08/03/2000 1130	0.52	15.0	6.9	91	5.9	Dip	Portable GC	0.52	0.33	1.8	--
08/14/2000 0830	0.54	15.0	6.8	91	6.0	Dip	Portable GC	0.43	<0.25	1.7	--
09/13/2000 0730	0.35	15.0	7.3	92	6.0	Dip	NWQL	0.47	0.24	1.6	--
09/13/2000 0830	0.34	15.0	7.3	92	6.0	Dip	Portable GC	0.61	<0.25	1.5	--
09/13/2000 0930	0.34	15.0	7.3	92	6.0	Dip	NWQL	0.46	0.24	1.6	--
09/13/2000 1030	0.34	15.0	7.3	92	6.0	Dip	Portable GC	0.68	0.57	1.5	--
09/13/2000 1130	0.35	15.0	7.3	92	6.0	Dip	NWQL	0.49	0.25	1.7	--
09/13/2000 1230	0.35	15.0	7.3	91	6.0	Dip	Portable GC	0.64	0.48	1.5	--
09/13/2000 1330	0.35	--	--	--	--	Dip	NWQL	0.47	0.23	1.6	--
10/31/2000 1215	0.32	15.0	7.9	93	5.7	Dip	Portable GC	0.42	<0.25	1.4	--
11/08/2000 1230	0.46	15.0	7.9	95	6.1	Dip	NWQL	0.39	<0.25	1.4	--
11/09/2000 1000	0.59	15.0	7.8	93	6.1	Dip	NWQL	0.44	0.22	1.4	--
11/10/2000 0945	0.52	15.0	8.1	94	6.2	Dip	Portable GC	0.37	<0.25	1.4	--
11/13/2000 1045	0.43	15.0	8.2	95	6.3	Dip	NWQL	0.46	0.23	1.4	--
11/15/2000 1500	0.39	15.0	7.8	89	6.7	Dip	Portable GC	0.50	<0.25	1.4	--
11/24/2000 1000	0.35	15.0	8.8	92	6.7	Dip	Portable GC	0.47	<0.25	1.4	--
11/30/2000 1130	0.31	15.0	10.0	92	6.6	Dip	Portable GC	0.25	<0.25	1.4	--
12/06/2000 1330	0.35	15.0	8.9	90	6.6	Dip	Portable GC	0.27	<0.25	1.2	--
12/14/2000 0900	0.37	15.0	9.5	87	6.5	Dip	NWQL	0.41	0.21	1.1	--
12/18/2000 1200	0.44	14.5	9.9	85	6.4	Dip	Portable GC	<0.25	<0.25	1.1	--
12/27/2000 1214	0.35	15.0	7.5	93	6.2	Dip	Portable GC	0.42	<0.25	1.2	--
01/04/2001 0945	0.32	14.5	7.2	93	6.2	Dip	NWQL	0.39	0.22	1.0	--
01/10/2001 1230	0.32	14.5	7.0	93	6.3	Dip	Portable GC	0.23	<0.25	1.1	--

Table 21. Volatile organic compound data collected at Cascade Spring—Continued

Date and time	Water-quality characteristic					Volatile organic compound data					
	Discharge (ft ³ /s)	Temper- ature (°C)	Dissolved oxygen (mg/L)	Specific con- ductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Tetra- chloro- ethylene (µg/L)	Tri- chloro- ethylene (µg/L)	cis-1,2- Dichloro- ethylene (µg/L)	Chloro- form (µg/L)
01/20/2001 1615	0.66	13.0	7.7	74	6.1	Dip	Portable GC	<0.25	<0.25	0.79	--
01/26/2001 1300	0.31	14.5	7.6	88	6.1	Dip	Portable GC	<0.25	<0.25	1.1	--
02/02/2001 1045	0.36	14.5	7.7	85	6.0	Dip	Portable GC	<0.25	<0.25	1.0	--
02/08/2001 1545	0.42	14.5	7.6	84	5.8	Dip	NWQL	0.42	0.30	1.0	--
02/10/2001 0015	0.49	14.5	7.7	84	5.8	Auto	Portable GC	<0.25	<0.25	1.0	--
02/10/2001 0044	0.49	14.5	7.7	84	5.8	Auto	Portable GC	<0.25	<0.25	1.0	--
02/10/2001 0114	0.49	14.5	7.7	84	5.8	Auto	Portable GC	<0.25	<0.25	0.98	--
02/10/2001 0144	0.51	14.5	7.8	83	5.8	Auto	Portable GC	<0.25	<0.25	1.0	--
02/10/2001 0214	0.51	14.5	7.7	83	5.8	Auto	Portable GC	<0.25	<0.25	0.94	--
02/10/2001 0244	0.51	14.5	7.7	82	5.8	Auto	Portable GC	<0.25	<0.25	0.95	--
02/10/2001 0314	0.51	14.5	7.8	82	5.8	Auto	Portable GC	<0.25	<0.25	0.90	--
02/10/2001 0344	0.52	14.5	7.8	82	5.8	Auto	Portable GC	<0.25	<0.25	0.89	--
02/10/2001 0415	0.52	14.5	7.8	82	5.8	Auto	Portable GC	<0.25	<0.25	0.89	--
02/10/2001 0445	0.52	14.5	7.8	82	5.8	Auto	Portable GC	<0.25	<0.25	0.84	--
02/10/2001 0545	0.52	14.5	7.8	82	5.8	Auto	Portable GC	0.53	0.28	1.2	--
02/10/2001 0645	0.52	14.5	7.8	82	5.8	Auto	Portable GC	0.35	<0.25	1.1	--
02/10/2001 0945	0.51	14.5	7.9	81	5.8	Auto	Portable GC	0.29	<0.25	1.1	--
02/10/2001 1215	0.49	14.5	7.9	81	5.8	Dip	Portable GC	0.27	<0.25	1.0	--
02/11/2001 0015	0.49	14.5	7.9	82	5.8	Auto	Portable GC	<0.25	<0.25	1.0	--
02/11/2001 1215	0.48	14.5	8.0	82	5.8	Dip	Portable GC	<0.25	<0.25	1.0	--
02/12/2001 0015	0.51	14.5	7.9	82	5.8	Auto	Portable GC	<0.25	<0.25	1.0	--
02/12/2001 1215	0.51	14.5	7.8	82	5.8	Dip	NWQL	0.44	0.28	0.93	--
02/14/2001 1130	0.68	14.5	7.7	74	5.9	Dip	Portable GC	<0.25	<0.25	0.82	--
02/14/2001 1145	0.68	14.5	7.8	74	5.9	Auto	Portable GC	<0.25	<0.25	0.83	--
02/14/2001 1345	0.68	14.5	7.7	74	5.9	Auto	Portable GC	<0.25	<0.25	0.81	--
02/14/2001 1544	0.68	14.5	7.7	75	5.9	Auto	Portable GC	<0.25	<0.25	0.78	--
02/14/2001 1945	0.66	14.5	7.8	76	5.9	Auto	Portable GC	<0.25	<0.25	0.78	--
02/14/2001 2144	0.66	14.0	7.7	76	5.9	Auto	Portable GC	<0.25	<0.25	0.77	--
02/14/2001 2344	0.70	14.0	7.7	76	5.9	Auto	Portable GC	<0.25	<0.25	0.80	--
02/15/2001 0144	0.90	14.0	7.8	65	5.9	Auto	Portable GC	<0.25	<0.25	0.67	--
02/15/2001 0344	0.97	14.0	8.1	58	5.9	Auto	Portable GC	<0.25	<0.25	0.55	--
02/15/2001 0544	1.02	14.0	8.2	54	5.9	Auto	Portable GC	<0.25	<0.25	0.51	--
02/15/2001 0745	1.01	13.5	8.2	55	5.9	Auto	Portable GC	<0.25	<0.25	0.41	--
02/15/2001 0945	0.99	13.5	8.2	56	5.9	Auto	Portable GC	<0.25	<0.25	0.43	--
02/15/2001 1145	0.97	13.5	8.2	58	5.9	Auto	Portable GC	<0.25	<0.25	0.47	--
02/15/2001 1345	0.97	13.5	8.1	59	5.9	Auto	Portable GC	<0.25	<0.25	0.64	--
02/15/2001 1545	0.97	13.5	8.1	60	5.9	Auto	Portable GC	<0.25	<0.25	0.68	--
02/15/2001 1745	0.97	13.5	8.1	61	5.9	Auto	Portable GC	<0.25	<0.25	0.66	--
02/15/2001 1945	1.04	13.5	8.1	59	5.9	Auto	Portable GC	<0.25	<0.25	0.61	--
02/15/2001 2145	1.04	13.5	8.2	56	5.9	Auto	Portable GC	<0.25	<0.25	0.55	--

Table 21. Volatile organic compound data collected at Cascade Spring—Continued

Date and time	Water-quality characteristic					Volatile organic compound data					
	Discharge (ft ³ /s)	Temper- ature (°C)	Dissolved oxygen (mg/L)	Specific con- ductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Tetra- chloro- ethylene (µg/L)	Tri- chloro- ethylene (µg/L)	cis-1,2- Dichloro- ethylene (µg/L)	Chloro- form (µg/L)
02/15/2001 2345	1.04	13.5	8.2	56	5.9	Auto	Portable GC	<0.25	<0.25	0.54	--
02/16/2001 0145	1.04	13.5	8.2	57	5.9	Auto	Portable GC	<0.25	<0.25	0.54	--
02/16/2001 0345	1.02	13.5	8.1	58	5.9	Auto	Portable GC	<0.25	<0.25	0.49	--
02/16/2001 0545	1.02	13.5	8.1	59	5.9	Auto	Portable GC	<0.25	<0.25	0.48	--
02/16/2001 0744	1.02	13.5	8.1	59	5.9	Auto	Portable GC	<0.25	<0.25	0.51	--
02/16/2001 0944	1.02	13.5	8.1	59	5.9	Auto	Portable GC	<0.25	<0.25	0.52	--
02/16/2001 1245	1.08	13.5	8.0	58	5.9	Dip	NWQL	0.28	0.18	0.51	--
02/16/2001 1445	1.08	13.5	8.1	56	5.9	Auto	Portable GC	<0.25	<0.25	0.57	--
02/16/2001 1545	1.13	13.5	8.1	55	5.9	Auto	Portable GC	<0.25	<0.25	0.45	--
02/16/2001 1745	1.38	13.5	8.2	46	5.8	Auto	Portable GC	<0.25	<0.25	0.37	--
02/16/2001 1945	1.29	13.5	8.4	44	5.8	Auto	Portable GC	<0.25	<0.25	0.30	--
02/16/2001 2145	1.22	13.0	8.4	47	5.9	Auto	Portable GC	<0.25	<0.25	0.38	--
02/16/2001 2345	1.18	13.0	8.4	51	5.9	Auto	Portable GC	<0.25	<0.25	0.42	--
02/17/2001 0145	1.15	13.0	8.4	53	5.9	Auto	Portable GC	<0.25	<0.25	0.45	--
02/17/2001 0345	1.15	13.0	8.3	54	5.9	Auto	Portable GC	<0.25	<0.25	0.50	--
02/17/2001 0545	1.13	13.0	8.3	55	5.9	Auto	Portable GC	<0.25	<0.25	0.49	--
02/17/2001 0745	1.13	13.0	8.3	56	5.9	Auto	Portable GC	<0.25	<0.25	0.48	--
02/17/2001 0945	1.11	13.0	8.4	56	5.9	Auto	Portable GC	<0.25	<0.25	0.48	--
02/17/2001 1245	1.09	13.0	8.3	57	5.9	Dip	Portable GC	<0.25	<0.25	0.51	--
02/17/2001 1545	1.09	13.5	8.3	58	5.9	Auto	Portable GC	<0.25	<0.25	0.80	--
02/17/2001 1845	1.09	13.5	8.3	58	5.9	Auto	Portable GC	<0.25	<0.25	0.79	--
02/18/2001 0045	1.09	13.5	8.3	60	5.9	Auto	Portable GC	<0.25	<0.25	0.78	--
02/18/2001 0645	1.08	13.5	8.3	63	5.9	Auto	Portable GC	<0.25	<0.25	0.83	--
02/18/2001 1845	1.01	13.5	8.1	67	5.9	Auto	Portable GC	<0.25	<0.25	0.88	--
02/19/2001 0645	0.95	13.5	8.1	71	5.9	Auto	Portable GC	<0.25	<0.25	0.96	--
02/20/2001 0645	0.84	14.0	7.9	77	5.9	Auto	Portable GC	<0.25	<0.25	1.0	--
02/21/2001 1315	0.76	14.0	7.8	80	6.0	Dip	Portable GC	<0.25	<0.25	0.94	--
02/22/2001 1330	0.90	14.0	7.8	75	6.0	Dip	Portable GC	<0.25	<0.25	0.83	--
02/25/2001 1315	0.90	14.0	7.7	74	6.0	Dip	Portable GC	<0.25	<0.25	0.81	--
03/02/2001 1230	0.64	14.5	7.7	86	5.9	Dip	Portable GC	<0.25	<0.25	0.83	--
03/07/2001 1115	0.57	14.5	8.1	88	6.0	Dip	Portable GC	<0.25	<0.25	0.88	--
03/15/2001 1130	0.68	14.5	7.6	88	5.9	Dip	NWQL	0.33	0.23	0.75	--
03/20/2001 1100	0.80	14.5	7.9	70	5.8	Dip	NWQL	0.31	0.22	0.58	--
03/28/2001 0800	0.30	14.5	7.8	88	6.0	Dip	Portable GC	<0.25	<0.25	0.77	--
04/04/2001 0830	0.31	14.5	7.5	89	6.0	Dip	Portable GC	<0.25	<0.25	0.82	--
04/08/2001 1230	0.24	15.0	7.6	90	6.0	Auto	Portable GC	<0.25	<0.25	1.0	--
04/08/2001 1329	0.24	15.0	7.7	91	6.0	Auto	Portable GC	<0.25	<0.25	0.96	--
04/08/2001 1429	0.24	15.0	7.6	90	6.0	Auto	Portable GC	<0.25	<0.25	0.92	--
04/08/2001 1529	0.24	15.0	7.6	91	6.0	Auto	Portable GC	<0.25	<0.25	0.91	--
04/08/2001 1629	0.24	15.0	7.6	90	6.0	Auto	Portable GC	<0.25	<0.25	0.90	--

Table 21. Volatile organic compound data collected at Cascade Spring—Continued

Date and time	Water-quality characteristic					Volatile organic compound data					
	Discharge (ft ³ /s)	Temper- ature (°C)	Dissolved oxygen (mg/L)	Specific con- ductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Tetra- chloro- ethylene (µg/L)	Tri- chloro- ethylene (µg/L)	cis-1,2- Dichloro- ethylene (µg/L)	Chloro- form (µg/L)
04/08/2001 1729	0.24	15.0	7.5	90	6.0	Auto	Portable GC	<0.25	<0.25	0.82	--
04/08/2001 1829	0.24	15.0	7.5	91	6.0	Auto	Portable GC	<0.25	<0.25	0.86	--
04/08/2001 1929	0.24	15.0	7.6	91	6.0	Auto	Portable GC	<0.25	<0.25	0.84	--
04/08/2001 2029	0.24	15.0	7.5	91	6.0	Auto	Portable GC	<0.25	<0.25	0.82	--
04/08/2001 2129	0.24	15.0	7.5	91	6.0	Auto	Portable GC	<0.25	<0.25	0.79	--
04/08/2001 2229	0.24	15.0	7.5	91	6.0	Auto	Portable GC	<0.25	<0.25	0.81	--
04/08/2001 2329	0.24	15.0	7.5	90	6.0	Auto	Portable GC	<0.25	<0.25	0.77	--
04/09/2001 0029	0.24	15.0	7.4	91	6.0	Auto	Portable GC	<0.25	<0.25	0.79	--
04/09/2001 0229	0.24	15.0	7.5	91	6.0	Auto	Portable GC	<0.25	<0.25	0.77	--
04/09/2001 0429	0.24	15.0	7.5	91	6.0	Auto	Portable GC	<0.25	<0.25	0.72	--
04/09/2001 0629	0.24	15.0	7.5	91	6.0	Auto	Portable GC	<0.25	<0.25	0.83	--
04/09/2001 0829	0.24	15.0	7.5	91	6.0	Auto	Portable GC	<0.25	<0.25	0.79	--
04/09/2001 1029	0.24	15.0	7.5	91	6.0	Auto	Portable GC	<0.25	<0.25	0.74	--
04/12/2001 1400	0.25	15.0	7.6	92	6.0	Dip	Portable GC	<0.25	<0.25	0.77	--
04/12/2001 2100	0.28	15.0	7.4	90	6.0	Auto	Portable GC	<0.25	<0.25	0.87	--
04/12/2001 2200	0.29	15.0	7.4	89	6.0	Auto	Portable GC	<0.25	<0.25	0.70	--
04/12/2001 2300	0.30	15.0	7.4	89	6.0	Auto	Portable GC	<0.25	<0.25	0.72	--
04/12/2001 2359	0.31	15.0	7.4	89	6.0	Auto	Portable GC	<0.25	<0.25	0.67	--
04/13/2001 0059	0.32	15.0	7.3	87	6.0	Auto	Portable GC	<0.25	<0.25	0.63	--
04/13/2001 0159	0.34	15.0	7.3	87	6.0	Auto	Portable GC	<0.25	<0.25	0.62	--
04/13/2001 0259	0.36	15.0	7.3	86	6.0	Auto	Portable GC	<0.25	<0.25	0.61	--
04/13/2001 0359	0.39	15.0	7.3	85	6.0	Auto	Portable GC	<0.25	<0.25	0.64	--
04/13/2001 0459	0.51	15.0	7.2	84	6.0	Auto	Portable GC	<0.25	<0.25	0.63	--
04/13/2001 0600	0.68	15.0	7.3	77	6.0	Auto	Portable GC	<0.25	<0.25	0.81	--
04/13/2001 0700	0.76	15.0	7.3	70	6.0	Auto	Portable GC	<0.25	<0.25	0.73	--
04/13/2001 0800	0.78	15.0	7.3	67	5.9	Auto	Portable GC	<0.25	<0.25	0.70	--
04/13/2001 0900	0.78	15.0	7.4	66	5.9	Auto	Portable GC	<0.25	<0.25	0.67	--
04/13/2001 1000	0.78	15.0	7.4	65	5.9	Auto	Portable GC	<0.25	<0.25	0.64	--
04/13/2001 1100	0.78	15.0	7.5	66	6.0	Auto	Portable GC	<0.25	<0.25	0.63	--
04/13/2001 1159	0.76	15.0	7.4	67	6.0	Auto	Portable GC	<0.25	<0.25	0.62	--
04/13/2001 1259	0.76	14.5	7.5	67	6.0	Auto	Portable GC	<0.25	<0.25	0.57	--
04/13/2001 1359	0.78	14.5	7.5	67	6.0	Dip	Portable GC	0.27	0.19	0.57	--
04/13/2001 1459	0.80	14.5	7.4	68	6.0	Auto	Portable GC	<0.25	<0.25	0.54	--
04/13/2001 1559	0.78	14.5	7.4	69	6.0	Auto	Portable GC	<0.25	<0.25	0.56	--
04/13/2001 1659	0.78	14.5	7.4	69	6.0	Auto	Portable GC	<0.25	<0.25	0.57	--
04/13/2001 1759	0.78	14.5	7.4	70	6.0	Auto	Portable GC	<0.25	<0.25	0.54	--
04/13/2001 1859	0.76	14.5	7.4	70	6.0	Auto	Portable GC	<0.25	<0.25	0.55	--
04/13/2001 2000	0.76	14.5	7.4	70	6.0	Auto	Portable GC	<0.25	<0.25	0.54	--
04/13/2001 2100	0.76	14.5	7.4	71	5.9	Auto	Portable GC	<0.25	<0.25	0.58	--
04/13/2001 2200	0.76	14.5	7.4	71	5.9	Auto	Portable GC	<0.25	<0.25	0.61	--

Table 21. Volatile organic compound data collected at Cascade Spring—Continued

Date and time	Water-quality characteristic					Volatile organic compound data					
	Discharge (ft ³ /s)	Temper- ature (°C)	Dissolved oxygen (mg/L)	Specific con- ductance (µS/cm)	pH (standard units)	Sample collection	Sample analysis	Tetra- chloro- ethylene (µg/L)	Tri- chloro- ethylene (µg/L)	cis-1,2- Dichloro- ethylene (µg/L)	Chloro- form (µg/L)
04/13/2001 2300	0.76	14.5	7.4	71	5.9	Auto	Portable GC	<0.25	<0.25	0.54	--
04/14/2001 0000	0.74	14.5	7.3	71	5.9	Auto	Portable GC	<0.25	<0.25	0.54	--
04/14/2001 0100	0.72	14.5	7.4	72	5.9	Auto	Portable GC	<0.25	<0.25	0.53	--
04/14/2001 0200	0.70	14.5	7.3	72	5.9	Auto	Portable GC	<0.25	<0.25	0.55	--
04/14/2001 0300	0.70	14.5	7.3	72	5.9	Auto	Portable GC	<0.25	<0.25	0.55	--
04/14/2001 0400	0.68	14.5	7.3	72	5.9	Auto	Portable GC	<0.25	<0.25	0.54	--
04/14/2001 0500	0.68	14.5	7.3	72	5.9	Auto	Portable GC	<0.25	<0.25	0.54	--
04/14/2001 0700	0.66	14.5	7.3	73	5.9	Auto	Portable GC	<0.25	<0.25	0.53	--
04/14/2001 0859	0.64	14.5	7.4	74	5.9	Auto	Portable GC	<0.25	<0.25	0.55	--
04/14/2001 1000	0.64	14.5	7.4	74	5.9	Dip	Portable GC	<0.25	<0.25	0.61	--
04/14/2001 1200	0.63	14.5	7.4	74	5.9	Auto	Portable GC	<0.25	<0.25	0.66	--
04/14/2001 1600	0.59	14.5	7.4	76	5.9	Auto	Portable GC	<0.25	<0.25	0.69	--
04/14/2001 2000	0.56	14.5	7.3	76	5.9	Auto	Portable GC	<0.25	<0.25	0.68	--
04/14/2001 2359	0.52	14.5	7.3	77	5.9	Auto	Portable GC	<0.25	<0.25	0.69	--
04/15/2001 0600	0.51	14.5	7.2	79	5.9	Auto	Portable GC	<0.25	<0.25	0.71	--
04/15/2001 1200	0.64	14.5	7.2	78	5.9	Auto	Portable GC	<0.25	<0.25	0.70	--
04/15/2001 1800	0.66	14.5	7.3	78	5.9	Auto	Portable GC	<0.25	<0.25	0.68	--
04/16/2001 0000	0.66	14.5	7.3	79	5.9	Auto	Portable GC	<0.25	<0.25	0.73	--
04/16/2001 1100	0.66	15.0	7.4	81	5.9	Dip	Portable GC	<0.25	<0.25	0.64	--
04/16/2001 1300	0.64	15.0	7.4	81	5.9	Auto	Portable GC	<0.25	<0.25	0.62	--
04/16/2001 1500	0.63	15.0	7.4	81	5.9	Auto	Portable GC	<0.25	<0.25	0.62	--
04/16/2001 1900	0.59	14.5	7.3	81	5.9	Auto	Portable GC	<0.25	<0.25	0.60	--
04/16/2001 2100	0.56	15.0	7.3	81	5.9	Auto	Portable GC	<0.25	<0.25	0.61	--
04/17/2001 0300	0.57	14.5	7.3	82	5.9	Auto	Portable GC	<0.25	<0.25	0.69	--
04/17/2001 1100	0.49	15.0	7.5	82	5.9	Auto	Portable GC	<0.25	<0.25	0.67	--
04/17/2001 1900	0.46	15.0	7.5	83	5.9	Auto	Portable GC	<0.25	<0.25	0.67	--
04/18/2001 0700	0.46	14.5	7.6	84	5.9	Auto	Portable GC	<0.25	<0.25	0.67	--
04/18/2001 1200	0.39	15.0	7.7	83	5.9	Dip	Portable GC	<0.25	<0.25	0.68	--
04/22/2001 2344	0.27	15.0	7.7	88	5.9	Auto	Portable GC	<0.25	<0.25	0.93	--
04/23/2001 0344	0.29	15.0	7.7	88	5.9	Auto	Portable GC	<0.25	<0.25	0.89	--
04/23/2001 0744	0.29	15.0	7.7	88	5.9	Auto	Portable GC	<0.25	<0.25	0.86	--
04/23/2001 1144	0.28	15.0	7.9	88	5.9	Auto	Portable GC	<0.25	<0.25	0.87	--
04/23/2001 1544	0.27	15.0	7.8	88	5.9	Auto	Portable GC	<0.25	<0.25	0.85	--
04/23/2001 2144	0.27	15.0	7.8	88	5.9	Auto	Portable GC	<0.25	<0.25	0.85	--
04/25/2001 0859	0.31	15.0	7.8	89	5.9	Dip	Portable GC	<0.25	<0.25	0.93	--
04/30/2001 2014	0.28	15.0	7.9	90	5.8	Auto	Portable GC	<0.25	<0.25	0.85	--
05/01/2001 1514	0.26	15.0	7.9	90	5.8	Auto	Portable GC	<0.25	<0.25	0.84	--
05/01/2001 1814	0.26	15.0	7.8	90	5.8	Auto	Portable GC	<0.25	<0.25	0.82	--
05/02/2001 1159	0.26	15.0	7.8	90	5.8	Dip	NWQL	0.32	0.25	0.92	--

Table 22. Volatile organic compound data collected at Big Spring

[°C, degrees Celsius; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; NWQL, U.S. Geological Survey National Water Quality Laboratory; GC, gas chromatograph; <, less than; --, no data; All samples were collected using dip-sampling methods]

Date and time	Gage height (feet above datum)	Water-quality characteristic				Sample analysis	Volatile organic compound data						
		Temperature (°C)	Dissolved oxygen (mg/L)	Specific conductance (µS/cm)	pH (standard units)		Tetrachloroethylene (µg/L)	Trichloroethylene (µg/L)	cis-1,2-Dichloroethylene (µg/L)	1,1-Dichloroethylene (µg/L)	1,1,1-Trichloroethane (µg/L)	Trichlorofluoromethane (µg/L)	1,1,2-Trichlorotrifluoroethane (µg/L)
03/23/2000 0945	2.04	14.0	7.8	144	6.8	NWQL	2.7	8.5	0.20	0.95	0.59	1.3	0.16
04/10/2000 1330	2.02	14.0	8.0	148	6.7	Portable GC	3.1	8.8	<0.25	--	--	--	--
05/16/2000 1145	2.00	14.0	7.7	148	7.0	NWQL	2.1	7.3	<0.20	0.64	0.41	0.82	<0.20
05/17/2000 0700	1.99	14.0	7.2	149	6.9	NWQL	2.3	7.8	<0.20	0.78	0.44	1.1	<0.20
05/22/2000 1200	2.02	14.0	7.8	148	6.9	NWQL	2.8	10.0	0.15	0.80	0.57	1.5	0.20
06/20/2000 0845	--	14.5	7.8	152	6.9	Portable GC	2.2	7.3	<0.25	0.40	--	--	--
06/20/2000 1000	--	14.5	7.8	152	6.9	NWQL	2.6	8.6	0.15	0.77	0.52	1.1	0.16
06/20/2000 1130	--	14.5	7.7	152	7.0	Portable GC	2.2	7.2	<0.25	1.1	0.48	--	--
06/20/2000 1230	--	14.5	7.8	152	7.0	Portable GC	2.1	7.1	<0.25	1.1	0.43	--	--
06/20/2000 1330	--	14.5	7.7	152	7.0	Portable GC	2.0	7.0	<0.25	1.0	0.44	--	--
06/20/2000 1430	--	14.5	7.7	152	7.0	Portable GC	2.2	7.0	<0.25	--	0.40	--	--
06/21/2000 0815	--	14.5	7.6	152	6.9	Portable GC	2.3	7.7	<0.25	1.4	0.40	--	--
07/05/2000 1430	2.00	14.5	7.7	156	6.9	Portable GC	2.3	7.4	<0.25	1.1	0.35	--	--
07/24/2000 1030	1.99	14.5	7.6	153	6.9	Portable GC	2.9	7.7	<0.25	2.0	0.33	--	--
07/31/2000 0930	1.97	14.5	7.8	155	6.9	Portable GC	2.4	7.2	<0.25	0.99	0.56	--	--
08/03/2000 1000	1.97	14.5	7.9	155	7.0	Portable GC	2.5	7.9	<0.25	0.81	0.34	--	--
08/07/2000 1630	1.96	14.5	7.9	156	7.0	Portable GC	2.9	8.4	<0.25	2.2	0.47	--	--
08/11/2000 1029	1.96	14.5	8.0	157	7.0	Portable GC	2.3	8.0	<0.25	0.94	0.59	--	--
08/14/2000 0830	1.97	14.5	7.3	157	6.8	Portable GC	2.7	8.4	<0.25	1.0	0.65	--	--
09/13/2000 0800	1.96	--	--	--	--	NWQL	3.1	11.0	0.17	0.96	0.64	1.6	0.16
09/13/2000 0900	1.96	--	--	--	--	Portable GC	2.9	9.4	<0.25	1.4	0.60	--	--
09/13/2000 1000	1.96	--	--	--	--	NWQL	2.9	10.0	0.17	0.88	0.61	1.3	0.15
09/13/2000 1100	1.96	--	--	--	--	Portable GC	2.8	8.9	<0.25	1.2	0.54	--	--
09/13/2000 1200	1.96	--	--	--	--	NWQL	2.9	10.0	0.17	0.85	0.59	1.3	0.15
09/13/2000 1300	1.96	--	--	--	--	Portable GC	2.5	8.3	<0.25	1.2	0.46	--	--

Table 22. Volatile organic compound data collected at Big Spring—Continued

Date and time	Gage height (feet above datum)	Water-quality characteristic					Volatile organic compound data							
		Temper-ature (°C)	Dissolved oxygen (mg/L)	Specific con-ductance (µS/cm)	pH (standard units)	Sample analysis	Tetrachloro-ethylene (µg/L)	Trichloro-ethylene (µg/L)	cis-1,2-Dichloro-ethylene (µg/L)	1,1-Dichloro-ethylene (µg/L)	1,1,1-Trichloro-ethane (µg/L)	Trichloro-fluoro-methane (µg/L)	1,1,2-Trichloro-trifluoro-ethane (µg/L)	
09/13/2000 1400	1.96	--	--	--	--	NWQL	2.8	10.0	0.19	0.84	0.59	1.4	0.15	
10/31/2000 1045	--	14.5	8.1	159	6.8	Portable GC	3.6	9.2	<0.25	1.0	0.78	--	--	
11/08/2000 1315	1.96	14.5	8.3	163	6.8	Portable GC	3.6	9.3	<0.25	1.0	0.66	--	--	
11/10/2000 0915	1.96	14.5	8.4	163	6.8	Portable GC	3.8	9.7	<0.25	1.2	0.79	--	--	
11/15/2000 1714	1.95	14.5	8.5	160	7.0	Portable GC	3.5	9.2	<0.25	1.1	0.74	--	--	
11/24/2000 0930	1.95	14.5	8.2	162	6.9	Portable GC	3.5	9.2	<0.25	0.96	0.72	--	--	
11/30/2000 1100	1.96	14.5	8.6	163	6.9	Portable GC	3.2	8.5	<0.25	0.90	0.81	--	--	
12/06/2000 1515	1.96	14.5	8.4	163	6.8	Portable GC	3.1	8.6	<0.25	0.85	0.56	--	--	
12/14/2000 0945	1.96	14.5	8.4	161	7.1	NWQL	3.0	11.0	0.22	0.93	0.56	1.3	0.17	
12/18/2000 0500	2.00	14.5	8.8	160	7.1	Portable GC	3.0	8.4	<0.25	0.85	0.51	--	--	
12/27/2000 1230	1.96	14.5	8.2	158	6.9	Portable GC	3.1	8.0	<0.25	0.76	0.44	--	--	
01/04/2001 1030	1.95	14.5	8.2	157	6.9	NWQL	2.6	10.0	0.19	0.84	0.47	1.2	0.12	
01/10/2001 1045	1.93	14.5	8.1	158	6.9	Portable GC	3.0	7.8	<0.25	0.73	0.37	--	--	
01/20/2001 1645	1.95	14.0	8.2	155	6.8	Portable GC	2.8	6.9	<0.25	0.65	<0.25	--	--	
01/26/2001 1330	1.92	14.5	8.3	154	6.8	Portable GC	2.7	7.1	<0.25	0.71	0.27	--	--	
02/02/2001 1000	1.93	14.5	8.4	152	6.9	Portable GC	2.8	7.3	<0.25	0.72	0.31	--	--	
02/08/2001 1030	1.93	14.5	7.7	151	6.5	NWQL	3.2	11.0	0.20	0.95	0.57	1.6	0.22	
02/16/2001 1330	1.96	14.0	7.6	152	6.7	NWQL	2.9	9.8	0.15	0.81	0.51	1.5	0.20	
02/17/2001 1330	1.97	14.0	8.2	150	6.8	Portable GC	2.7	6.9	<0.25	0.72	<0.25	--	--	
02/20/2001 1215	1.94	14.0	7.7	150	6.7	Portable GC	2.9	7.6	<0.25	0.80	<0.25	--	--	
03/02/2001 1100	1.93	14.0	7.4	148	6.6	Portable GC	3.0	7.7	<0.25	0.81	<0.25	--	--	
03/07/2001 1200	1.94	14.0	8.1	149	6.8	Portable GC	2.9	7.2	<0.25	0.87	<0.25	--	--	
03/15/2001 1030	1.93	14.0	7.6	149	6.8	NWQL	2.7	9.2	0.17	0.88	0.46	1.4	0.15	
03/21/2001 1445	1.96	14.0	7.7	147	6.5	Portable GC	2.3	6.1	<0.25	0.66	<0.25	--	--	
03/28/2001 0700	1.93	14.0	8.4	149	6.7	Portable GC	2.3	6.2	<0.25	0.62	<0.25	--	--	
04/04/2001 0800	1.96	14.0	8.1	150	6.6	Portable GC	2.5	6.4	<0.25	0.67	<0.25	--	--	
04/11/2001 1700	1.95	14.0	8.2	150	6.7	Portable GC	2.1	5.6	<0.25	0.54	<0.25	--	--	
04/18/2001 1345	1.96	14.0	8.1	149	6.5	Portable GC	2.5	6.3	<0.25	0.67	<0.25	--	--	
04/25/2001 0800	1.95	14.0	8.3	148	6.5	NWQL	2.5	8.5	0.18	0.85	0.48	1.2	0.14	
05/02/2001 1330	1.93	14.0	8.3	149	6.6	NWQL	2.1	7.6	0.17	0.69	0.41	0.89	0.12	

